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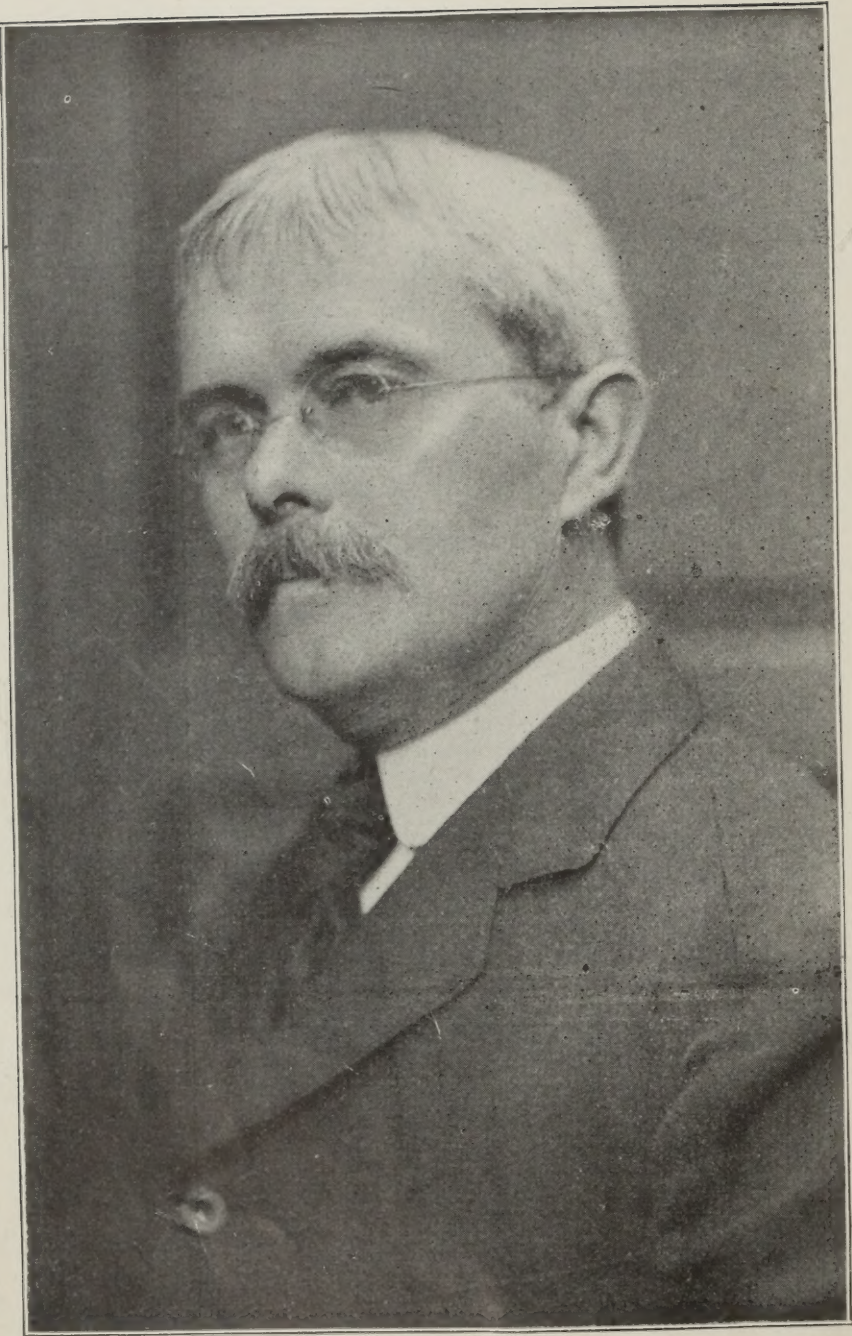
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EDWARD C. KIRK, D.D.S., SC.D., PHILA., PA.

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Original Communications

THE CULTURAL FACTOR IN THE DENTAL CURRICULUM.

Edward C. Kirk, D.D.S., Sc.D., Phila., Pa.

Delivered at the dedication of the building of the Royal College of Dental Surgeons,
Toronto, December 29 1909

Your Honor, Mr. President, Ladies and Gentlemen:—First of all let me discharge the pleasurable duty imposed upon me by the Administration of the University of Pennsylvania and its Faculty of Dentistry, by conveying to you their fraternal greetings and hearty congratulations upon the completion of this splendid edifice, which to-day you dedicate to the purposes of education in an important specialty of the science and art of healing.

It is characteristic of the things of the mind that they are unhampered by the limitations of time or extent, that the commonwealth of intellect is without geographical boundaries or distinctions of caste, race or nationality; that the pursuit of the intellectual ideal lifts all to the level of a common brotherhood, and it is in the spirit of this larger fraternalism that I bring you the salutations and greetings of one of the oldest institutions of learning established by England in her American colonies. It is by reason of our common origin as well as by reason of our common ideal that I have a peculiar pleasure in being present upon this happy occasion as the temporary mouthpiece of an elder sister institution to discuss with you briefly something of the circumstances and conditions which environ the special department of education with which we are mutually concerned, and, claiming the prerogative of an elder sister somewhat, to point out a few of the difficulties to be overcome by her younger relative, who with the enthusiasm and pride begotten of a new and faultless dress starts out to-day refreshed and eager upon her educational pathway.

While dentistry, and possibly dental education, in some sort or degree, is doubtless coeval with man and man's physical needs, dentistry as an organized department of activity and education is but seventy years old, its inception as a profession dating from the establishment of the first school for the systematic education of dental practitioners in Baltimore in 1839. From this initial and successful attempt at organization upon an educational basis have arisen all subsequent efforts having the same objective purpose, notwithstanding the individual differences as to means and methods which they severally involve.

From the first successful attempt to provide the means for the systematic education of the dentist down to the present time both the effort and its practical realization have been "hedged round and about" by opposing opinions as to the relationship which dental education should rightfully bear to medical education. And while the arguments of those who would compel the merging of dental education within the medical curriculum are even now manifesting another periodical recrudescence, the process of evolution and the incontestible logic of fact and experience are more and more firmly establishing dental education upon an autonomous basis.

It is not my purpose to enter into a discussion of the relationship of dentistry and medicine further than to call attention to the fact that from its beginnings as an educational system dental education has been subject to more or less stress of criticism because it has elected to develop outside of the channels of medical education and to mark its qualification with a degree distinctive of its own special culture.

That our professional forebears were wise in their decision to place dental education upon an independently organized basis, is a conclusion which I think is justified by the practical success of their plan which, in its evolution and development, has given to the world the profession of dentistry as we now find it, ministering acceptably to the health and comfort of humanity in all civilized nations.

The social conditions, the social needs of humanity to-day are, however, not the same as those which characterized the period when dentistry as a profession was in its swaddling clothes. To quote a recent phrase of President Eliot, "the world has been remade in the last half-century", and it will, I think, be profitable for us to consider to what degree dentistry and dental education have kept pace with this world development, in other words has dentistry remade itself in keeping with the intellectual and material progress of society?

Mr. Herbert Spencer enunciated as his broadest and most comprehensive definition of life that it is "The continuous adjustment of internal relations to external relations." Applying this definition to the case in hand, our enquiry concerns the degree and extent of the adjustment which dental education has

maintained with respect to its environing social relations; has it in its educational methods reflected the intellectual progress of the times and fairly met the demands of the social order by a continuous adjustment thereto, thus demonstrating its right to live?

From the material point of view no other than an affirmative answer is possible. When we consider the aggregate of pain and suffering that has been mitigated or completely banished by the skillful ministrations of the dental practitioner; when we think of the added years of comfortable human life, the relief of distress from disfigurement, the restoration of comeliness, the prevention of disease, the correction of deformities and of defective speech and, above all, the boon of surgical anesthesia given to humanity by dentistry, surely no one can doubt its importance and utility as a department of the great science and art of healing.

In its technical procedures and its artistic craftsmanship dentistry has acquitted itself so creditably that the flexibility of its technical resourcefulness has become proverbial, yet to such an extent has the attention of the dental profession been focused upon the material side of its progress that we have failed, I fear, in no small degree, to grasp its larger possibilities and to appreciate the importance of those factors of professional life upon which a higher attainment, a greater usefulness to humanity, and a wholesome self respect depend.

As a counter influence to this concentration of attention upon the material feature of dental practice, with its commercializing tendencies, there is needed above all things an aggressive propaganda of education, the objective purpose of which shall be the development of that type of culture which is expressed as professional character. In making this statement I fully realize that I am simply rephrasing a belief which has been frequently expressed before, but because of that very fact it is all the more evident it represents a condition broadly recognized both within and without the limits of the dental profession.

A tendency to indifference toward those things which make for professional character has subjected us of the dental profession to not infrequent criticism and some who recognize the condition without investigation of the cause are inclined to place the responsibility directly upon our dental educational institutions. That our dental colleges should become the target for criticisms of that character is not unnatural nor do I think that it is altogether unmerited. As the seed ground for the development of professional skill and qualification through training and technical education so also the colleges of dentistry should be the nurseries of professional character and culture. I take it for granted there can be no dissention as to the general truth of that question, nor do I think that there can be any real doubt as to the fact that while we have given much attention to this technical education at all points, there has not been given proportionate attention to the

cultured features of our educational system in the preparation of the student for his professional life.

It is in his college course, and because of his college course, that the student acquires, and later manifests as a practitioner, that tendency to concentrate his attentions upon the material features of his work which I have before referred to as a professional attribute, which gives rise to adverse criticism and creates the demand for a broader training for the dentist, less narrowing and commercializing in its tendency.

The general answer of our dental educational institutions to this kind of criticism is that they are purely technical schools, that they are compelled to deal with the material delivered to them by the preparatory schools, that defects in intellectual culture are chargeable to faulty preparation, that the business of the dental college is to teach dentistry, not to develop culture. This defensive attitude is only partially true, for we may concede that the preliminary education of the dental student should have done much to have broadened his mind and have aroused to activity in him those intellectual attributes which later become fixed in character, it must be remembered that the process has only been begun in the preparatory school and that three or four years of purely technical professional study may quite easily neutralize the cultural effect of his preparatory work unless his professional training is conducted with reference to conserving and further developing his powers of intellectual growth.

I realize full well that I am likely to arouse an attitude of incredulity, even possibly of scorn, by the suggestion that anything in the curriculum of dental study may have a cultural value as such, quite apart from its material technical usefulness, but because I believe that something more than mere technical training can be gotten out of the dental course, that something in the nature of character development may be derived from doing the work of the dental curriculum, I am encouraged to present that side of the question, for I am convinced that its due recognition will eventuate not only in relieving those of us who are teachers of a source of criticism but also it will greatly improve the grade and texture of our educational product and make our graduates not only better dentists but men of larger intellectual resources and therefore more acceptable members of society.

Can the dental curriculum be utilized for the attainment of these desirable ends? Let us seek the answer in an analogy. It may be stated almost axiomatically that in the materialization of great artistic conceptions the character of the medium in which they may be expressed is a minor consideration. What concerns us most in the contemplation of a statue, for example, is not the material of which it is made, but is it good art? Does it bear the stamp of artistic genius? The creations of the greatest masters of harmony were in many cases interpreted upon instruments of inferior grade, but one's soul of music may speak its

divine message through any medium and enthralled by its spell we care not if it be "blown through brass or breathed through silver." So also in the utilization of education for the ends of culture, it is not the means by which the intellectual activities are set in motion that are of primary importance, but rather the ends towards which our educational efforts are directed; and it is these that should mainly concern us both as teachers and students.

Education dominated by the purely utilitarian motif, as most of our modern education is, loses its cultural effect by concentrating the mental faculties upon the function of acquisition, of getting, as an intellectual process. The graduate thus trained goes forth to his life work, which consists for the most part in converting his mental potential into terms of material possession.

By the overemphasis of the utilitarian ideal those faculties of the mind, the exercise of which creates a taste for the higher orders of intellectual enjoyment, suffer from arrest of development under which conditions any process of thought that does not work out to a concrete material end becomes impossible.

In this way we are not only creating a deformed and one-sided educational product but, still worse, we are closing the doors that lead to the sources of highest human happiness. The age is essentially utilitarian, the demand is for the practical and for the kind of education which may be ultimately expressed in terms of material prosperity. In response to the universal clamor for an education that will help to achieve these material ends, our schools, our seats of higher learning, are yielding, many of them under protest, to the general demand. The old and one-time popular type of education, the study of Greek and Latin classics, is becoming obsolete and the demand is that modern language training shall replace the study of Greek and Latin because of the greater usefulness of modern languages in the practical business of life. Regarded simply as mental discipline the exchange of modern language study for the ancient tongues may have entailed no serious loss, and, possibly, from the standpoint of material usefulness, the exchange may have been attended with a certain degree of gain, but what has been lost is the uplifting effect of the Greek ideal, the spiritualizing power with which the activities of life become invested by contact with Greek thought and culture.

In his portrayal of the processes of intellectual growth of his young hero, Walter Pater says of Marius, the Epicurean, "He was acquiring what is the chief function of all higher education to impart, namely, of so relieving the ideal of poetic traits, the elements of distinction in our every-day life—of so exclusively living in them—that the unadorned remainder of it, the mere drift and debris of our days, comes to be as though it were not If our modern education in its better efforts, really conveys to any of us that idealizing power, it does so (though dealing mainly, as its professed instruments with the most select and ideal remains

of ancient literature) oftenest by truant reading." We have here, I think, the admission of one of the illuminati of classic learning that while the "most select and ideal remains of ancient literature" are the professed instruments by which the idealizing power is directly awakened in the human intellect, yet the divine spark of inspiration is oftenest caught by "truant reading." But why necessarily or exclusively from reading of any sort in the literal sense? Is there not in the world about us, in the study of the material universe of which we are a part, the contact with which involves not only our struggle for existence but our effort to solve the riddle of life, the stuff from which all books, all literatures are derived? Is it not from these sources that the poets, the sages, the inspired ones of all times have heard the divine message and transmitted it in immortal terms to humanity?

Those leaders of education who have yielded a willing ear to the general demand for utilitarianism as the dominating principle of our educational system, have justified their position by a narrow interpretation of Herbert Spencer's epoch-making question of "What knowledge is of most worth?"

The deduction that only the knowledge which has any worth at all is that kind which may be converted to material use is an injustice to the intellectual breadth of the great philosopher which is not warranted by his own statement of his case. In his contention as to the superiority of scientific study over other means of education he says, "The discipline of science is superior to that of ordinary education because of the religious culture that it gives. So far from science being irreligious, as many think, it is the neglect of science that is irreligious. Science is religious, inasmuch as it generates a profound respect for and an implicit faith in those uniform laws which underlie all things. By accumulated experience a man of science acquires a thorough belief in the unchanging relations of phenomena, in the invariable connection of cause and consequence, in the necessity of good or evil results. He sees that the laws to which he must submit are not only inexorable but beneficent. He sees that in virtue of these laws, the process of things is ever toward a greater perfection and a higher happiness. Science alone can give us true conceptions of ourselves and our relation to the mysteries of existence. Only the sincere man of science—and by this title we do not mean the mere calculator of distances, or analyzer of compounds, or labeller of species—but him who through lower truths seek higher and eventually the highest—only the genuine man of science, we say, can truly know how utterly beyond not only human knowledge, but human conception is the Universal Power of which Nature and Life and Thought are manifestations. For discipline as well as for guidance, science is of the chiefest value. In all its effects, learning the meaning of things is better than learning the meaning of words. Whether for intellectual, moral or religious training, the study of surrounding phenomena is immensely superior to the study of grammars and lexicons."

In the passage which I have just quoted it seems to me we find the vitalizing thought which, honestly and intelligently applied to our educational work, should ultimately lift it out of the slough of unrelieved materialism in which it is at present struggling, and help us to reform it upon lines which shall restore to all education the power to direct the mind toward the contemplation of higher things and thus to elevate the standards of reasonable human living and of human happiness.

Herbert Spencer, an accepted exponent of scientific thought, tells us that we must seek the higher truths through the lower orders of phenomena, which is simply the unadorned statement of an evolutionary law, but a law which is the basis of all development of the mind, of all intellectual progress. Ages before anything worthy of the name of science was conceived of the mind of man, in its earliest gropings took its first wavering steps toward the infinite through the labyrinth of common things about him, and out of his material experiences he began to weave the fabric of an intellectual vestment which was later destined to clothe his conception of his gods and his holy ones, and thus make it possible for him to worship the infinitely good, the true and the beautiful. And so it has been in all ages, for while we recognize the fact that each age refines and improves upon the experiences of its predecessors, yet the individual in his mental and cultural growth repeats the old journey, more easily perhaps, but nevertheless he must gain his goal by experiences concerned with the lower orders of truth before he can reach the higher. The poets, philosophers and artists of all times have reflected the same thought. If I catch his meaning aright, it is a portrayal of this fundamental principle which we find set forth by Robert Browning in that confession of his faith entitled "Christmas Eve and Easter Day," where he breaks forth in that magnificent declaration of the apotheosis of the love element in life,—

"Love which, on earth, amid all the shows of it,
Has ever been the solid good of life in it,
The love ever growing there spite of the strife in it,
Shall arise, made perfect, from Death's repose of it;
And I shall behold thee face to face,
O God, and in thy light retrace,
How in all I loved there still wast Thou."

It was the reaching out for these higher conceptions that characterized the best culture of the ancient Greeks, and conversely, it is our tendency to subordinate these higher attributes of the mind in relative importance as compared with materialism and utilitarianism, that is the defective feature of our modern systems of education. In our efforts to adapt education to the ends of material progress we have lost sight of the possibility, nay more, we have neglected the duty of seeking for the higher orders of truth through the lower orders of phenomena with which we deal

in our educational work. We have concentrated our attention too much upon the media of education and have in so doing neglected the most important ends of education, the cultivation of those higher attributes of character that satisfy the demands for happiness, that make life a joy well worth the living.

If such character development as produced the best culture of the Greeks were possible under the conditions of human knowledge and material development then existing, how much simpler and more direct should be the access to a similar cultural development under the conditions of our modern civilization.

Our failure to discover the cultural value of the educational material with which we are now dealing has resulted from our intense preoccupation with the lower orders of phenomena, and our consuming desire to utilize them for the ends of material prosperity.

We must re-establish the ancient ideal, which the best culture of all people have shown to be the development of an appreciation for the higher orders of truth, a love for the study of causes behind phenomena, and an abiding faith in the fact that the larger happiness of life is to be found in the things of the mind rather than in material acquisitions.

It is this ideal which must govern us as teachers if we are to hope to in any degree stem the tide of materialism and commercialism with which our work is at present dominated. We must realize that the work of the class-room and the laboratory is susceptible to the vitalizing influence of the cultural principle. To bring out from the study of the lower order of phenomena with which he deals, an appreciation of the underlying forces, the "Welt Geist" of which the material things of life are but the outer cloak, is the mark of the true teacher as distinguished from the novice, just as it is the same order of intellectual development in the laboratory, the studio or shop that marks the difference between the master and the apprentice, the artist and the artisan respectively.

I believe that the principle which I have attempted to portray is directly applicable to the work of the dental curriculum as it is to all education. Dentistry in its scientific aspect may be regarded as a specific department of the great science of biology combined with certain phases of chemistry and physics. Its art is merely the application of these sciences to the ends of practice, but in their practicable application the cultural elements of honesty of purpose, faithfulness to artistic ideals, a love of the intrinsic beauty of Nature's designs and a veneration for Nature's laws are essential for success. These higher cultural attributes it should be the part of the teacher to develop from the study of the data which comprise the lower order of phenomena of the dental curriculum.

To all who sympathetically and intelligently give ear to the voice of Nature the pathway is clear, for, as Robert Louis Steven-

son has beautifully expressed it, "The Greeks figured Pan, the God of Nature, now terribly stamping his foot, so that armies were dispersed; now by the woodside on a summer noon trolling on his pipe until he charmed the hearts of upland ploughmen. And the Greeks in so figuring uttered the last word of human experience. To certain smoke-dried spirits, matter and motion and elastic ethers and the hypothesis of this or that spectacled professor tell a speaking story; but for youth and all ductile and congenial minds, Pan is not dead, but of all the classics hierarchy alone survives in triumph; goat-footed, with a gleeful and an angry look, the type of this shaggy world; and in every wood, if you go with a spirit properly prepared, you will hear the note of his pipe."

Our mission then, as teachers of a humane and useful profession, is to penetrate this "shaggy coat" of materialism, this commonplace and unattractive covering of the Divine Spirit behind it all, and to so educate those committed to our charge that they shall, in God's providence, be able to see something more than "the seamy side of the Divine vestment which the Earth Spirit is forever weaving on the whirling loom of Time."

SOME NOTES ON LOCAL ANAESTHETICS.

John Harper, M.R.C.S., L.R.C.P., L.D.S.

Read before the Victoria Dental Society, December 4th, 1909.

Mr. President and Gentlemen:—In response to the request for a paper to be read at the present meeting, I have cast about for a topic which should prove of interest to the majority, and finally in the brief space of time available put together a few notes upon Local Anaesthetics.

Amongst the many drugs which have been used to obtain local anaesthesia, cocaine will naturally present itself first, not alone on account of its potency but as being the earliest to come into general use in recent years; and had its action in actual practice been as localized as its advocates claimed, there would not have arisen the lengthy list of substitutes now obtainable. In dental work a *sine qua non* is that the patient shall exhibit no untoward symptoms after the use of any drug, and on this account the alarming and bizarre results in many cases of the injection of even small doses of cocaine have led to its abandonment by most of us.

Amongst the substances recommended as substitutes for cocaine may be mentioned stovaine, novocain, tropacocaine, beta-eucaine, alypin, beta-eucaine lactate, nervanine and many others, and when estimating their local anaesthetic action Professor Braun's essentials should be taken into account, viz:—

1. A lower degree of toxicity than cocaine in proportion to its local anaesthetic power.
2. Sufficient solubility in water. The solution should be stable and capable of sterilization by boiling.
3. Absence of any sign of irritation. There should be no injury to the tissues, the local anaesthetic should be easily absorbed without causing any after effects, such as hyperemia, inflammation, infiltration or necroses.
4. Compatibility with adrenalin.
5. Rapid penetration of the mucous membrane and suitability for medullary anaesthesia.

All the drugs mentioned above and several others were recently investigated by Dr. Le Brocq, along the lines laid down by Professor Braun, and I cannot do better than briefly mention the results obtained:

Solubility in water:—Cocaine, stovaine, novocain, tropacocaine, beta-eucaine lactate, alypin, and nirvanine are fully soluble in water, their solutions are stable and as a 2% solution they will keep for a short time without deterioration.

Sterilization of solution:—Cocaine cannot be boiled, as decomposition occurs and the drug loses its activity; the others can be sterilized at 115 degrees C. if necessary and the drug is as active after as before sterilization.

Local anaesthetic action:—Cocaine being taken as the standard, stovaine has a more powerful anaesthetic action, weight for weight, than any of the rest.

Toxicity:—As the toxic action of these drugs is to paralyze the nervous system and so the respiratory centre, the toxicity in mammals must be regarded as the correct reading, for when respiration ceases the animal dies.

If the toxicity of cocaine be represented by 1, then that of

Alypin	will represent	1.25
Nirvanine	“ “	.714
Stovaine (Chlorhydrate of Amylene) “ “		.625
Tropacocaine	“ “	.500
Novocain	“ “	.490
Beta-eucaine	“ “	.414

Irritant Action on the Tissues:—When injected into the abdominal wall of rabbits, the skin being previously washed, shaved and made aseptic, cocaine was found to cause slight swelling and hyperaemia soon after injection.

Stovaine caused intense hyperaemia and dilatation of the blood vessels, followed by sloughing of the part.

Beta-eucaine lactate caused swelling and thickening about the seat of injection, followed by sloughing.

Tropacocaine caused swelling and some thickening, followed by sloughing.

Novocain showed no swelling and no hyperaemia, the part was perfectly normal after injection and remained so.

Compatibility with Adrenalin:—All the local anaesthetics are compatible with adrenalin if the solutions are fresh and kept only for a short while. After a day or two the adrenalin decomposes unless it is kept in stoppered opaque bottles. The conclusion finally arrived at by Dr. Le Brocq was that of all the drugs investigated novocain is the most satisfactory for general use. Its anaesthetic action is equal to that of cocaine and its toxicity and general destructive power on the tissues are very much less.

Speaking from personal observation after using stovaine, novocain, eudrenine, beta-eucaine, and cocaine I have had more satisfactory results from novocain than any of the others.

In regard to the technique of the injection of a local anaesthetic I need scarcely point out that asepsis as thorough as is possible when dealing with the oral cavity must be attended to. All syringes and needles, therefore, should be kept cleansed and the hands of the operator should be thoroughly washed before he proceeds to inject. The sterilizing glasses now obtainable, in which the syringe needle when not in use can be suspended in an antiseptic solution, are useful. A 5% solution of carbolic acid or lysol is an excellent medium, the latter being an efficient agent which has no action upon the metal of the syringe.

Many forms of syringe are now in use, the special requirements to which it should conform being, that it should be made entirely of metal, be simple in construction, powerful in action, and convenient to handle. There should be no glass about it to get fractured, and a transverse bar at the mouth of the barrel to serve as a fulcrum for the middle and index fingers of the operator, pressure being exerted by the thumb behind the piston. Screw-on needles are the best to use, and they should be of very fine calibre.

Before injecting, the mouth should be rinsed with an antiseptic mouth wash and the site selected swabbed over with a pledget of cotton wool dipped in an alcoholic solution of corrosive sublimate 1-1000 and then dried.

The point of insertion of the needle, most in favour, is midway between the gum margin and the position of the root of the tooth, in an oblique direction. A slow but gradual pressure on the piston of the syringe should lead to a blanching of the mucous membrane. When this blanching is well defined in outline, the needle, after a short pause, should be slowly withdrawn and re-inserted at the periphery of the blanched area, when more of the solution is again injected under pressure. By repetition of this procedure the whole of area surrounding the tooth or teeth to be extracted can be successfully rendered anaesthetic. In case of abscessed teeth care should be exercised not to inject into the pus cavity or marked sufferings will be caused. In order to avoid pain during the primary insertion of the needle a little ethyl chloride may be sprayed over the part where it is to enter, or some of the

anaesthetic solution applied upon cotton wool for a short period before injecting.

Before concluding, I would like, if I may do so, to give you some account of a method not without interest, practised by an English confrere, Dr. Parott, who makes use of local anaesthesia in conservative work. Dr. Parott's *modus operandi* is as follows: With a heavy metal syringe fitted with an ordinary sharp needle a preliminary injection is made into the gum, using perhaps not more than m.5 of the m.30 which the syringe contains. The needle is withdrawn and changed for a heavier one. A clean round bur, of a calibre corresponding to that of the heavy needle is placed in the handpiece and the head dipped in pure carbolic, any excess being shaken off. Tightening the soft tissues, if necessary, over the spot with a finger of the left hand, the bur, revolving fairly rapidly, is passed clean through them and made to penetrate the outer layer of compact bone, the perforation being made as near the level of the apices of the roots as easily practicable, in their direction and as nearly as possible midway between them, where the septum is thickest, to avoid injury of the periodontal membranes. The yielding structure of cancellous bone is easily distinguished and the bur is withdrawn. If the preliminary injection has been effectively made, this small operation will be quite painless. The heavier needle is then inserted into the perforation in the bone under the soft tissues, the escharotic action of the pure carbolic on the bur, apart from its sterilizing action, aids materially in locating the perforation again, by whitening the edges of the puncture made by the bur in the soft tissues; without it there would be little visible sign of the perforation, owing to the automatic closing of the tissues and the comparative bloodlessness of the part from the preliminary injection.

The heavy needle is pressed well home into the part prepared for it and a deep injection made with the remaining contents of the syringe, care being taken that the fluid does not leak back; sometimes strong pressure is needed, and this must be guarded, as the fluid may find its way into any arterial or neural canal adjacent and entering with a rush may possibly cause a momentary pang to the patient, or a touch of nerves to the operator. Usually, however, it enters easily and steadily into the vascular bone.

In conclusion I trust, gentlemen, that these few notes, compiled without any pretensions to literary merit, may elicit in your kindly criticism many points which will be of mutual benefit.

THE TREATMENT OF ALVEOLAR ABSCESES.

By A. V. Lester, L.D.S., D.D.S., Hamilton, Ont.

Read before the Hamilton Dental Society, December 13, 1909.

In presenting this paper for your consideration, I do not lay claim to anything original, but, like Montaigne, "I have made only a nosegay of called flowers, and have brought nothing of my own, but the string that ties them."

The tendency of the present age in therapeutics is to place all treatments on a rational basis, and no better place could be found for such treatment, than an alveolar abscess. Not so many years ago, the treatment for this condition was cold steel, while to-day, with our knowledge of anatomy, histology, chemistry, and materia medica, the greater percentage of these teeth so affected, can be preserved. It will not do to place a remedy in a tooth, unless you know why you place it there, what it is going to do, and the condition it will leave that tooth in, after your treatment; but if we are to take this subject from a rational basis, let us start from the beginning.

Causes.—The exciting causes of an alveolar abscess are found in septic conditions, resulting from the death of the dental pulp, and from certain inflammatory affections of the pericementum. The most exciting causes are the organisms of suppuration and decomposition, viz., the pyogenic and saprophytic bacteria. The ptomanies or waste products of these organisms, and gases formed as the result of the decompositions of the tissues of the pulp, passing through the apical foramen, and coming in contact with the tissues of the apical space, cause irritation and a lowered vitality of that tissue, as a result of their poisonous effect, and inflammation follows.

The general condition or tone of the individual is an important factor in the predisposition to infection. Persons who are debilitated from illness, overwork, anxiety, debauchery, or strenuous diathesis, and those suffering from diseases like tuberculosis, syphilis, etc., are far more susceptible to the invasions of pathogenic organisms, than those in robust health.

Diagnosis.—(Local). The diagnostic signs of an alveolar abscess are, discoloration of the tooth, no response to the thermal test, showing that the pulp is dead, tenderness to percussion, elongation of the tooth, looseness in the alveolus, tenderness to palpitation over the apex of the root, swelling and inflammation of the gums, and fluctuations at that point when the abscess is about to point.

(General). With formation of pus, there is generally a rigor or chilly sensation lasting for an hour or two. This is followed by an elevation of temperature and may rise to 101, 103, or 105 degrees F.

Decompositions of Pulp Tissue.—We must now go back and take up the chemical compositions of the original pulp tissue, before decomposition or fermentations took place. From a general chemical examination, we find this tissue analogous or nearly so to all other animal tissue, being composed of proteids, carbohydrates, and fats. On this hypothesis, we can perhaps ascertain the intermediate and end products, resulting from the decomposition of this tissue. When death occurs, the decomposition takes place gradually, conditions being favorable, the organisms present first act upon complex and unsuitable compounds, composing the original tissue, splitting them into less complex compounds, many of which are capable of further analysis, and the process goes on until simple and well known compounds are the result. For Simplicity, these compounds are divided into two classes, intermediate and end products, and are usually the products of putrefaction.

Intermediate products depend upon the character of the micro-organisms in the tissue, but it is safe to say that ptomaines and amido acids are formed. Ptomaines are nitrogenous compounds of organic origin, having the reaction and basic properties of alkalies.

Among the ptomaines liable to be produced are cadaverin, neuridin and putrescin. Neuridin is non-infectious and is of little importance other than to know that it is a nitrogenous base, from which ammonia or derivatives of ammonia is evolved by further putrefaction. Putrescin and cadaverin are the most important intermediate and end products known to be formed in the splitting up of the proteid molecule. They also are basic nitrogenous compounds, capable of further putrefaction and evolving ammonia or derivatives, but unlike this compound, both have been proven to be capable of producing inflammation and suppuration. Therefore when forced through the apices of the roots, septic pericementitis or an acute alveolar abscess is the result.

Amido acids are acids in which hydrogen has been replaced by the radical $N.H_2$. Among the amido acids formed in pulp decomposition, are tyrosin and leucin. These substances whenever found, have the same physiologic properties and pathologic significance. They occur in the intestines during the digestion of food, and leucin is found in almost every cell in the animal kingdom. Pathologically they are found in cysts, pus, abscesses, etc., as well as in putrescent root canals.

The end products of pulp decompositions are: Water, H_2O ; carbon dioxide, C_2O ; acetic acid, $H.O_2$, $H_3.O_2$; ammonia, $N.H_3$; hydrogen sulphide, $H_2.S$, and a semi-putrid substance consisting largely of fats, depending upon the extent the putrefaction progress has progressed.

Now we see that the principal gases generated are ammonia and hydrogen sulphide, with the former in excess, and having this as our basis to work from, it will not be hard to find a remedy.

It has been known for some time, that formaldehyde, a gas that occurs in commerce in a 37% aqueous solution called formalin will unite with ammonia producing a solid intropin as $6 \text{ C.H}_2\text{.—O.} + 4 \text{ N.H}_3\text{.} = (\text{C.H}_2\text{.})_6 + 6, \text{ H}_2\text{.O.}$

Formaldehyde united with basic ptomaines forms inodorous compounds and by its use the irritating gases and poisonous liquids can be charged into non-irritating and non-poisonous liquids and solids.

Fats result from pulp decomposition and are present as such in a putrescent root canal.

Tricresol, a combination of the three creasotes, ortha, meta, and para, is the agent used to modify the irritating action of the formaldehyde gas, and also has a chemical action on the fats. What this action is, Dr. Buckley, the originator of this treatment, does not clearly state, and this we will have to take for granted. If tricresol cannot be procured pure beechwood creasote is a good substitute, but will not readily mix with formalin, but this can be overcome by the addition of a small quantity of alcohol, which will clear the solution.

Treatment.—Blind Abscess. Open freely into the pulp chamber without the use of the rubber dam, as the canals are already infected. Do not disturb the contents. Take a pledget of cotton saturated with formalin and tricresol, equal parts, and seal in the pulp chamber without pressure, with a quick setting of cement and leave for two or three days. It is not necessary to leave the tooth open, because our treatment will look after those gases and turn them into liquids and solids. If the pain is great and does not subside, it is advisable to give the patient an anodyne, preferably morphine, because you know what you are giving, whereas with the proprietary preparations, you are not familiar with their compositions. Give $\frac{1}{8}$ grain to the patient at the time, and give them another tablet of the same amount to be taken two hours later if the pain does not subside, but under no consideration let the patient know what you are giving. The reasons are obvious. A counter-irritant is also advisable at the apex of the affected root. See that the bowels are working properly. A good cathartic, such as Epsom salts, should be recommended. At the second sitting apply the rubber dam, sterilize the surrounding teeth with a ten per cent. solution of formalin. Open the teeth and remove dressing. Now remove all dressing from pulp chamber and canals. Clean all canals with a ten per cent. solution of chemically pure sulphuric acid and then neutralize with a saturated solution of bicarbonate of soda. Seal formalin and tricresol back again, but this time use two parts of the latter to one of the former. Leave this latter dressing for a week. Generally only two or three treatments are required. A great deal of harm is done by over-treating. Give nature a chance and you will have far better success.

Abscess with Fistula.—Having made sure of your diagnosis, apply the dam and open the tooth and mechanically evacuate all

pus. Force some bland solution through the root and out the fistula. This is best done with a hyperdermic syringe and a piece of soft rubber. Then cauterize the tract with a ten per cent. solution of trichloroacetic acid and seal the latter drug in the canal. Some authorities advise filling the canals at the first sitting. If at the next sitting, which should not be less than a week or ten days, the conditions are favorable, fill the canals. If after the above treatment, the tooth does not respond to treatment, it is evident decay has attacked the end of the root. Take a medium-sized smooth broach, and insert to end of canal. If it should go through the root into the soft tissue, it is a good sign that you have decay at the apex. To treat this condition there are two methods:—First, root amputation; second, extraction.

Complications.—1. Encystment of the root is a difficult complication to treat. This condition is sometimes found on an abscessed root and is caused from deposits, excrementosis, or other causes. To effect a cure, it is necessary to establish a sinus and remove the deposits. Excise the root or extract the tooth.

2. Involving the Vault. We have another complication hard to cure. Generally the periosteum is separated from the bone and necrosis is often caused. More often, this condition is caused from the lateral tooth as it is situated near the premaxillary suture and the abscess follows the line of least resistance. Lance the tissue and evacuate the pus. Cut away necrosed bone with a bur, if any, then force bland solution through the root and out the fistulous tract; cauterize with ten per cent. solution trichloroacetic acid. The number of treatments will depend upon the condition of the case.

3. Involving Alveolus. The case is hopeless. Extract the tooth, and the sooner the better.

4. Occasionally we find an abscess of the discharging variety which does not yield to our general treatment, yet we are reasonably certain that none of the complications so far mentioned are present. In this case, we can suspect a secondary abscess pocket. This is especially true when the sinus has opened into the mouth, several teeth removed from the affected one. The pocket can be discovered with a probe. The treatment is simple, as all that is necessary is to open the pocket, wash out with a bland solution and cauterize with ten per cent. solution trichloroacetic acid.

5. Occasionally you will open a tooth and find the pulp in one canal putrescent, and, in the other canal, it will be alive. This case requires a somewhat different treatment. Seal formalin and tricresol in the putrescent canal and arsenic tri-oxide in the other. Formaldehyde gas is very irritating to the tissue, and should never be used except when there are gases and ptomaines. If this one point is remembered, a lot of trouble will be saved to the dentist first using this remedy. Take a fresh bottle of formalin, place it to the nose and notice what an irritating odor it has to the nasal membranes.

Just a word about proprietary preparations such as oxapara, corsolforin, co-arda. The basis of these all, is formalin and tricresol. There are a good many dentists using oxapara, and cotton to fill the root canals of teeth recently devitalized. Sometimes they have sore teeth and wonder why. The irritating gas of formaldehyde will set up inflammation so violent in character, that teeth have been known to become loose in their sockets and drop out.

Oxapara is an expensive remedy. If you wish to use it to fill putrescent root canals, or abscessed teeth, why not purchase a cheap cement powder like Weston's and mix with formalin and tricresol. This has proved very satisfactory and is much cheaper, and besides you have the advantage of having it fresh, and can modify your proportions of the liquid to suit your different cases. This mixture combined with gutta percha points, makes an ideal root filling.

It has been claimed that oxapara contains certain drugs and one in particular, alum, which will stop weeping in a canal, where it occurs. In a prescription for oxapara, taken from one of the dental journals, alum is not mentioned as one of the constituents, but thymol is, and this drug is probably the one that will cure this condition; but the advantages of the above mentioned mixture in regard to cheapness and usefulness far outweighs the latter. If you have weeping in a canal, the following mixture will be found very efficient:

10 grs. Thymol, 2 drachms of Eucalyptol.

If this remedy should fail, dry the canal as well as possible and fill, and it is very seldom you will have any trouble after.

The above treatments cover the more common cases found in general practice. While it is not claimed that these treatments will cure all cases, as some teeth will not respond to any treatment, still with judicious care, the greater majority of teeth so affected can be saved. It is necessary once more to caution, not to over-treat your cases, as Nature does the healing and the medicinal agents assist.

THE TEETH.

Chapter X of "The Hygiene for Young People," by A. P. Knight,
M.A., M.D.

Published by Copp Clark Co., Ltd., Toronto Recommended by the Minister of Education for use in school libraries in Ontario.

The part of a tooth which can be seen in the crown, and the part that is hidden in the jaw is the root. Running up into the middle of a tooth from the tip of its root, is a small canal into which and out of which blood passes through small tubes. This blood nourishes the tooth and keeps it alive and well.

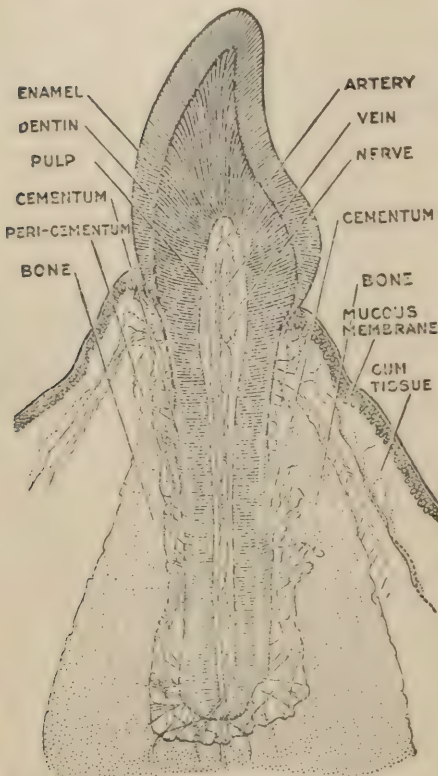


FIGURE 24—Section of a tooth showing enamel, dentine, cement and pulp cavity.

In addition to the blood tubes, a fine nerve passes up the canal to the pulp cavity in the middle of the tooth. The nerve tells us when anything goes wrong in the inside of the tooth. If the nerve gets very much worried, we say the tooth is aching. But no healthy tooth ever aches. The ache always comes on when a cavity has formed somewhere in a tooth, and when air or small pieces of food have got into the cavity far enough to worry the nerve. If we wish, therefore, to avoid toothache, we should take great care of our teeth.

What makes a tooth decay? There are different causes, of course, but in most cases the decay starts where small particles of food stick to the teeth. If, after a meal, you look into a mirror, and examine your teeth, you will see little bits of food in white patches along the edge of the gum and between the teeth. After every meal these patches of food should be removed in part by a quill toothpick, and the rest should be brushed off.

Because, if we do not keep our teeth clean, some very, very tiny plants begin to grow on these particles of food and start the decay of the teeth. You will think it very strange that plants should grow on the teeth, but they do. If you were to take a microscope and look at some of this white stuff on the teeth, you would find some very small plants which look like little rods.

Of course, these plants are never big enough to be seen with the naked eye.

After what you have read about Pasteur's work with soup,

you will not need to be told where these germs come from. They are in air and in food, and therefore soon get on the teeth. All that these microbes need in order to grow is a good moist warm soil, and this soil they find already at hand for them in the patches of food which cling to the teeth.

Just as the rain and heat of summer help to make the grass and flowers grow in our gardens, so the moisture and warmth of the mouth make these invisible plants grow, first on the white patches of food, and then on the teeth.

But how do they manage to make a tooth decay? It is so hard and firm, one would think that these little plants could do no harm to a strong healthy tooth.

Well, in the first stage of their growth these plants do no harm. They simply grow and increase in number in the little particles of food. Very soon this food starts to spoil, and, as the tiny plants grow on the decaying food, an acid, something like vinegar, forms on the tooth and begins to make it decay.

At first the harm done is very slight indeed; but when the food particles are not brushed off after every meal, the decay goes on from month to month, and from year to year, until at length we feel a tooth a little sore, and on getting some one to look at it, we find that there is a cavity in it.

For many a day we do not notice the decay going on. There is no nerve on the outside of a tooth; and so, when the decay begins, we do not feel any pain. It is only when the decay has reached the little space in the middle of the tooth, where the nerve lies, that we feel pain.

But invisible plants, by their growth, not merely decay the teeth; they cause stones which are as hard as marble to decay. If you will take the trouble to look at the very old tombstones in any old burial ground, you will see that they are quite unlike the new ones. The smooth polish that was once on them, is there no longer. The letters and dates can hardly be read. They are more or less covered with moss.

How have they become so changed? The answer is that their surface has been altered in part by the growth of invisible plants, and that after this has gone on for many years, another kind of plant, the mosses, begin to grow on them, and then the decay goes on faster than ever.

Stones from volcanoes have been worn down and partly turned into soil in the same way. So we need not wonder any longer as to how these invisible plants make cavities in our teeth.

Another way in which decay may begin is by seeds of berries or pieces of bone, or even the bristles of a tooth-brush, getting between the gum and the root of the tooth. When this occurs, it gives a chance to the invisible plants to start to grow in the tiny



FIGURE 25—Decay has just begun in one of these teeth; in the other, the decay is more advanced

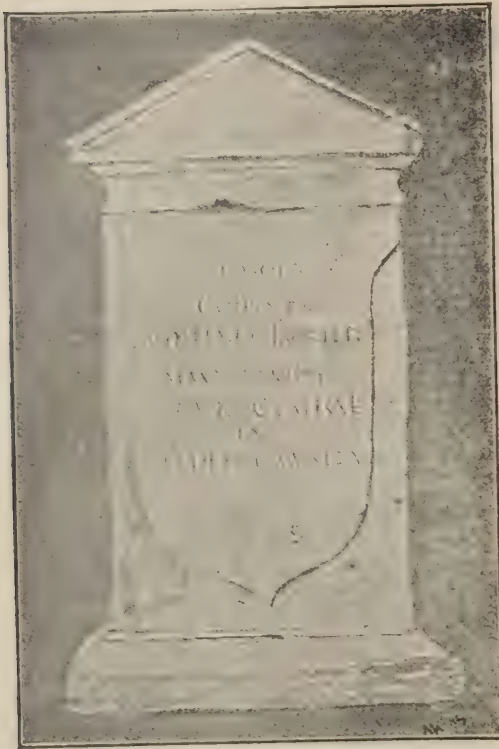


FIGURE 26—An old Tombstone

wound, and, since the root of the tooth is much softer than the crown, the decay goes on all the faster. So, you must be careful to remove all such things.

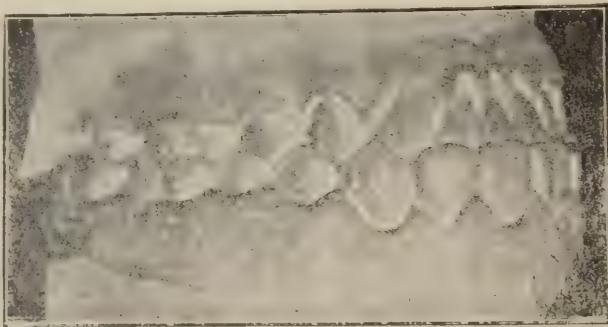


FIGURE 27—Teeth showing proper management and care

The teeth should be brushed up and down, never across from front to back. Always use a brush the bristles of which do not spread. Fine tooth powder should be used to polish the enamel, and some harmless mouth wash like listerine to rinse the mouth and kill disease germs. Now and again the crown of each tooth should be polished with tooth powder on a narrow chisel-like piece of wood, so as to prevent the formation of a crust, which is known as tartar.

A quill or wooden toothpick should be used in removing the tougher pieces of food which may become fixed between the teeth.

Before using a new brush for the first time soak it in water from twelve to fifteen hours. This prevents the bristles from coming out. If you find your brush too stiff, soak in warm water a few minutes before using. Use a small brush in order that

there may be room enough for it between the cheeks and the teeth.

Always brush from the gums towards the grinding surfaces of the teeth. Never brush across the teeth, as this habit makes it impossible to reach the parts requiring it most, and frequently cuts deep grooves in the necks of the teeth, necessitating fillings, and causing the gums to fall away from the teeth.

The proper way to use a brush is as follows: beginning at the upper back teeth, place the bristles high up on the gums and by rotary motion carry them straight down past the ends of the teeth. In this way you have the benefit of massaging the gums, and brushing all foreign material from the surface of the teeth. Repeat with the teeth in the lower jaw, but in this case, you will of course brush from the lower gums upward.

After having brushed the teeth thoroughly in this manner, it is sometimes wise to place the brush with the bristles against the teeth; agitate slightly so that the bristles may penetrate between the teeth, and then rotate towards the grinding surface of the teeth. Continue this procedure until you have covered all the teeth, brushing downward for the uppers and upward for the lowers.

Any difficulty experienced in using this method soon disappears with practice. The inner and grinding surfaces of the teeth should be brushed as carefully as the outer surfaces.

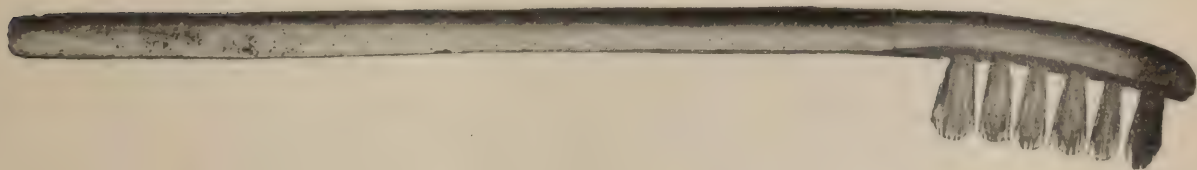
Questions.

1. Make a drawing of a tooth from memory and mark upon it the name of each part. What is the use of the little hole in the root?

2. What is the chief cause of the decay of teeth? On what do these tiny plants, or bacteria, grow at first? Where, afterwards?

3. How may cracks be made in the covering of a tooth? Will these cracks promote or retard the decay of teeth? Describe one way in which stones are made to decay.

4. Would it be fair to reason thus:—Decayed teeth cause poor



mastication of food; poor mastication leads to ill-digestion of food; ill-digestion or indigestion causes poor blood; and poor blood leads to lack of growth and lack of strength in children?

5. What is one cause of foul breath? How can it be remedied?

ADDRESS ON DENTISTRY

GOLD INLAYS, PORCELAIN INLAYS, CROWN WORK,
REMOVABLE BRIDGES, PARTIAL DENTURES,
GENERAL PROSTHETIC WORK.

BY HART J. GOSLEE, CHICAGO.

Read before the Dental Society of Western Canada.

(Continued from page 549, Vol. XXI)

It is permissible and possible to increase the contour by moulding your wax over the buccal surface of your teeth. Wherever you put the wax your gold will run, and wherever your gold goes it comes in contact with your plate gold comprising the band. You can smear as much wax on the outer surface of the band as you want to secure contour. Then you are ready to cast your crown. Sprew wire should be attached to the crown at some favorable point. You want to place the sprew wire in the thickest part of the wax, which will not interfere with the occlusion. You want to observe that the crown is held as nearly in the centre of the flask as possible, so it will not come in contact with the sides or be raised up so high as to project over the upper edge of the flask, and come in contact with the casting machine when it is inverted. It should always be placed at a point where the wax is thickest. As soon as it is thus attached to the sprew wire, soak the crown in water for a few minutes in order that this investment which fits the inside of the band may become saturated with moisture. After that has been placed in water for a few seconds, or a minute, place it in the sprew hole, or base of your flask, mix the investment material and finish the flasking. As soon as this crystallizes, burn out your wax, the same as a filling; heat it up and cast it, and the result is a finished crown which is practically a seamless crown, which is stronger and better than a seamless crown, with no soldered joints, and made in half the time it is possible to make an all gold crown by any other method, or a seamless crown by any of the various methods on the market. In the last year and a half I have not made a gold crown any other way. You will find the use of this little wax instrument very advantageous in this case, because usually we have cut our roots so short that there are openings of space between the edge of the root and the base of the teeth when the mouth is in occlusion, and the more space between the edge of the root and the occlusal surface of the mouth, when closed, the thicker our cusps will be, and then the more gold we will have to use, but with the wax instrument we can draw out all the surplus amount of wax and then not use any more gold than we would in the ordinary construction of a gold crown. We then have a crown

that fits the root exactly as an inlay fits a cavity. It can go only one way, it cannot rock to the buccal or lingual or distal or mesial, and it is not possible to press it until its cervical edge passes too far under the margin of the gum, and less of an irritating result is liable to happen and less cement is used in the mounting, and at the same time more occlusion is obtained. I have one here cast in silver, on a German silver band. You will notice how it fits the root and the advantage of that as applied to a practical case in the mouth.

Dr. C. E. Meirhoff, of Chicago, sends you his method of making a cast crown, which I do not think is any better than the one I have suggested. It takes a longer time and is not any better. It is made of 34 gauge platinum, fits only to the cervix, and then cuts a lot of little slits in the occlusal edge of the band and bends that forward into the roots and then takes an impression and builds up his crown with wax. To do that, he obtains his contour and contact and shape and form in wax, using the band only to give him adaptation, to the circumference of the root, therefore he has consumed more time than would be necessary in the method I have described, although the results obtained are very artistic, as you will observe here.

Other variations might be suggested. I have one here where I use no band at all, moulding the wax to the root, but you cannot get a good adaptation of wax to the circumference or periphery in the mouth, and, therefore, the use of the band is absolutely necessary. You can do it on a model, but when it comes to the mouth you must have a band. I have also another one here where I used to use a short platinum band, having the band just the length of the root I was crowning—exactly that length—and then building up an occlusal surface of the root with gold and covering up the platinum band entirely. The use of platinum was necessary because I feared that the casting of 22 carat gold, or even 5 per cent. platinum gold, might fuse your platinum band, but I found I could cast a 22 carat gold on a 22 carat gold band, using 20 carat solder. That band is protected, of course, by the investment material which is around it. I believe any of you who will follow the method I have described, first, will necessarily become convinced that it is the easiest and simplest method of making a gold crown which gives the best results, as far as strength and contour are concerned. The only solder you have used has been a little bit of a piece to attach the band, in the first place, and the carat does not matter, because if you were to use 18 carat and in carving up your wax smear a little wax down there, and if your solder was burnt out, the cast gold would take the place of it and make the band better than before. This will never show a discolored joint which a crown put together with solder will always do.

That is one method, as applied universally to the construction of gold crowns. Possibly many of you may know that I have always been more or less enthusiastic in porcelain work, and I

have always used the porcelain crown for the ten anterior teeth. It was my general practice to build the crowns for my ten anterior teeth in my practice in that manner. For a year and a half I have not made a porcelain crown as I used to make them. I am now using the ready-made porcelain crowns, dowel crowns, and casting a base for them, and making the porcelain crowns for my ten anterior teeth along these lines. In a paper which I had the pleasure of reading at Toronto a year ago last November, I prophesied the use of replaceabl teeth more or less exclusively, and from that time I began to use porcelain crowns on the Davis-Logan separable dowel type, for the ten anterior teeth, because I could get a stronger grade of porcelain in just as artistic effect and as great strength as in the ordinary porcelain crown. The greatest element of weakness in the ordinary porcelain was ~~the~~ presence of the platinum pins and projecting post in the centre, dividing our porcelain right in two. As we used to construct a porcelain crown you will see the pins were bent down until they came with the projecting end of the dowel and then soldered into the centre of the porcelain. The metal was right through the centre, and as a result, this lingual cusp, this whole mass forming the lingual contour to the crown, would break away. I subsequently came to the conclusion that we would put a little cup of porcelain on the cap and pack it in. That proved very satisfactory and was used by me to the last, but then I found that checks would occur down here, and the cause was the presence of the metal pins in the facing and the projecting edge of the dowel there, causing a line of cleavage divided one from the other, in the centre. This is the weak spot in our porcelain crown work, and the weak spot that is overcome in the use of our detachable crown. We have a large mass of porcelain without any metal. It is not subjected to any heat and the greatest possible amount of strength is in it, and remains in it at all times, and the only thing that has ever been necessary in the use of that style of crown has been to obtain an adaptation of it to the root which supported it, which would seal it hermetically, which would secure permanency in its adjustment to the root. All my porcelain crowns at the present time have been made by using the Davis or the Logan or Justi separable crown, and grinding it to fit the root and casting the root and cementing the crown onto the base. The maximum amount of strength is to be obtained in the construction of this kind of crown, and equal or greater artistic results are to be obtained than we can get out of the use of facings and porcelain, no matter how successful we are. I have, therefore, adopted that process to the construction of porcelain crowns or crowns which are to be mounted on the roots within the range of vision in the mouth where cosmetic effects are to be considered, and I have yet to see or hear of one of them breaking.

I have here a large root of porcelain, to which is adapted a base for a large crown. The crown was lost or broken, so I only

have the cap or lid, but I call your attention to the adaptation of the cap to the root. Here is a bicuspid made in exactly that manner. I call your attention to the strength which it is possible to obtain in this type of crown, and to the adaptation which it is possible to secure to the root and the crown to the cap.

I have here several variations in the construction of this particular type of crown and even sections showing you the relation of the dowel and porcelain after the tooth has been cemented to place, also the relationship between the base and the root after the two have been attached with cement. I am asked a question as to the difference between using an adjustable type and the separable dowel and the use of the tooth like a Logan crown where the tooth is the integral part of the crown. I have always felt that the weakest point in any of our porcelain teeth, whether it be a Logan crown or the simple facing, was the presence of platinum in it. Any one of you who has ever seen the Logan crown broken in use will know exactly where it broke. Anyone who has seen facings broken, will know where they broke. They broke where the metal part was, and I recommend the general use of a separable dowel crown and the attachment of the porcelain part to the metal part by use of cement, as there is less danger of breakage.

As to the detail of constructing a porcelain crown with a cast base, the adaptation of the crown to the root should be made by means of grinding in identically the same manner as you would if you were going to mount it without any cast base, in so far as the requirements are concerned, and the relationship existing between the neck and root of tooth, upon the labial or buccal surface is concerned. As soon as you have ground the tooth you are ready to make room between the base of the crown for your cast base and that is done at the expense of the lingual and proximal surfaces of your porcelain crown. Always have the points as close as possible. As soon as you have ground your crown to its adaptation of the root, fit your dowel to crown and root and fit it in such position as to have the dowel held to crown in its proper relation to the root. If you get the dowel too short, you might change the relationship, but by having that dowel long enough and trimmed just right to hold the crown properly in its relationship to the root, you will then have no trouble. I then take the porcelain tooth or dowel, and you can use the German silver dowels if you wish, but I prefer the radio-platinum wire because a better physical union will take place and greater strength will result, and it can be properly and thoroughly cleaned in acid after the casting, which isn't possible if you use the German silver alloy dowel. I cast one recently and threw it in acid and when I came back the dowel had all disappeared. You may know that these various platinum and platinoid and white metal and other fancy names for this purpose, are all German silver in some form or other, copper, nickel and zinc. All contain zinc

and that makes them readily soluble in any acid of any strength. Having secured the crown, paint over the surface with a little glycerine so your melted wax will not stick to the porcelain, melt your wax on the dorsal end and place it on the end of your crown. I have tried to get disks to keep from getting too much wax but I find the best way is to melt the wax on the base of your crown. You know by your eye how much room you have between the basal end of your crown and the root. It is very easy to melt up the amount of wax. By melting the wax on there you can come nearer to getting the exact amount required than by making a disk. By means of a small wax spatula I melt enough wax to fill in between the crown and the root, with enough surplus to enable me to mould it nicely to the tooth. Ordinary base plate wax is as good as I have found. The wax I recommended for tooth fillings is too hard. It is necessary to have a wax which can be moulded to the tooth without too much work. It should also stick to the dowel nicely, but not to the crown. I melt the wax over the dowel and the top of the crown and then I carry that from the flame, where it is warm, to the root, and force the crown to place until the wax is moulded to conform to the outlines of the root. Let it remain there until it is chilled, or chill it with water, and then your crown will slip off easily, leaving your dowel and wax in place on the tooth. Then with a small instrument remove your surplus, trimming it down to where you want it, and with a thin spatula take the wax up on the root upon the proximal and particularly upon the lingual surfaces until you have forced it in the gum, which will form a partial band. This is easily done if you use the soft wax and thin instrument. If you don't have enough, you can take off a little more and mould it up until you can form something like a band. As soon as that is adapted to the root, lift the crown and subsequently the wax cap and dowel, and put the two together and smooth down the edge of the wax that is usually very thin. I usually increase the thickness of it by melting a little more on it. As soon as you have made this wax cap as thin as possible, and shaped it up as you want it, you are in shape to attach it to the sprew. At some point or other you must have a thick enough portion of wax to receive the sprew wire. In some cases I have found I didn't have enough thickness to receive the full end of my sprew wire. In such an instance you can melt some wax over the side of the tooth itself until you get a place large enough to receive the end of your sprew wire. You can use the harder wax. There will be surplus gold after the casting is finished, but that can be cut off and finished down. You could put your wax into the centre of the lingual surface or proximal surface, mount it securely to the sprew, and then you are ready to invest.

DR. CLINT: Is there any objection to having a considerable space between the lingual surface of the root and the crown, furnishing plenty of space for the sprew attachment?

DR. GOSLEE: Not a bit. Now, if it be an anterior tooth you could have as large a space as that, and that would give you plenty of room to attach your sprew to. Of course, the less space you have, the less gold you use, and the more porcelain you have, the more asthetic your crown will be, but don't grind away any more than is necessary. The more time you spend in finishing this wax up, to have it as nearly correct as possible, the less time it will take to finish the gold, and it is much easier to work wax than gold. When we have completed this type of crown for the ten anterior teeth, we should cement our facing on. We have a crown that is as well adapted to the basal end of the root as it is possible for us to get by any means of construction. We have a porcelain tooth which simulates the crowns of the natural tooth more closely than we could get with building up a porcelain crown afterward. We have a porcelain crown which is better colored and firm. We have a crown which has no metal in it, and therefore is not weakened. We have a facing which has not been subjected to heat and the possibility of fracture in usage is remote. In this case it would be well to make a record of the size and color of each individual tooth and put that in your record, because you can then get another tooth identical with the one you used, giving you a very great advantage. Perhaps you might want to use a band, the root might be somewhat frail, or you might require a greater degree of integrity in the attachment of the artificial crown than you would by taking the wax up as I have suggested. If you do, you will observe the same procedure exactly that you have here, except you fit your little band of gold first and after you have moulded your wax in identically the same manner as I have suggested, the band will probably not come with it, but its imprint will be in that wax and all you have to do is to take this band off and smooth the wax up, casting the wax, but having the band there to form the peripheral outline of your crown. It only requires the additional time to fit the band itself. Some have suggested using a thin platinum floor, first fitting it to the root and then casting to that. If you fit the wax to fit your root nicely, it is just as smooth as the surface of your platinum on the gold. If you have a good investment material, the finished crown, with a cast floor, fits just as close, if your wax has been smooth and your investment material has been of a good quality.

Now we have considered two types of crown work. I want to say to you that they are universally applicable to restoring all of the teeth. The gold crown on the molar teeth and the porcelain crown with cast base on the ten anterior teeth. What more do we want? Haven't we simplified our methods and parts and got better results than we would otherwise? There is another type I sometimes prefer for some of the anterior teeth, and that is the all-porcelain jacket crown. In cases of defective formation, we have to make a restoration and will want to conserve the integrity

of the pulp, and in that case it requires an all-porcelain jacket crown. It requires a greater skill to apply the hollow crown of porcelain and for that reason it will perhaps not be universally used, but when one is skilful enough to apply one, and applies it where it is required, you will have the best method for these cases.

We have a hollow shell crown of porcelain without any metal which is attached to the straight root by means of cement, and attached exactly as we attached the separable dowel crown. With those three styles of crowns I feel we are able to give our patients the very best possible service and that constitutes the number of classes of artificial crowns I am using at the present time. There may be a case now and again where you might want to make a Richmond crown with a porcelain facing and backing, but I cannot think of one. There may be cases where you feel like using a porcelain-backed crown. I can conceive of a class of cases requiring this class of crown, which would be where the artificial crown would have to be very long and thin and where you could not grind down your porcelain crown thin enough to conform with the requirements of the alignment and give you strength. In that case you might prefer to face your crown with porcelain and bake your porcelain but there is a class of facings that would be still stronger than that particular class of crown, and I will refer to this a little later on. I feel I have covered the subject of crown work as thoroughly as I care to, because I have told you all the types of crowns I am using to-day.

BRIDGE WORK.

Now let us pass to the consideration of bridge work. In considering the subject of bridge work, all that is necessary for us to do is to first determine whether the fixed or removable bridge is indicated. I am a firm believer in fixed bridge work, and I use it everywhere in the mouth that I can, and where I feel it will be successful. I am guided in deciding whether it is indicated or not by the position and stability and number of the supporting teeth. Wherever the number and stability of the supporting teeth are adequate to the fixed bridge, I never hesitate to put it there. If the position, stability and number of the supporting teeth be not adequate to the requirements of the fixed bridge, then you must resort to the removable bridge, and the conditions existing in the mouth will indicate to you which should be used in the case at hand. Often I have seen bridges made of the removable type by other operators which I wouldn't think of constructing in any other way than a fixed bridge. I believe a fixed bridge can be kept as clean as a removable bridge.

After having decided on the type of bridge indicated, the next thing to decide is the type of attachments that we are going to use to securely anchor the bridge to the natural teeth. Under that consideration, what do we have as methods of securing the anchorage to the natural teeth? We have innumerable methods, but we only

need three for fixed bridge work—a gold crown, a cast base porcelain crown, and an inlay of some form.

Now when I speak of an inlay of some form, I include the so-called mechanical attachment, and every other means of obtaining attachment to natural teeth. They are practically inlays in common, but with the same shape or style of them improved. It is necessary for us to consider, I believe, only those three types of anchorage or attachments, or abutment attachments, as a means of fixing our fixed bridge work to the natural teeth. Where the gold crown is indicated in the posterior part of the mouth, it will take the position better than anything else. The porcelain crown in the anterior part of the mouth will take the position better than anything else. The amount of tooth structure absent in the teeth we are going to use. We know some kind of an inlay can be placed in there which will restore the lost portion and give us as secure an anchorage as any of the crowns would give, and if it would be possible, I would prefer an inlay to any artificial crown. I believe wherever there is a sufficient number of teeth to allow us to attach a good fitting inlay, it will make just as good an attachment for a fixed bridge as any we could build. Between crowning teeth and putting an inlay in, I would use the inlay wherever I could, and I am confident that if it is securely attached to the teeth, it will afford just as secure an attachment for fixed bridge work as we could obtain in any other way. We have therefore to consider the three kinds of attachments for bridge work, the gold crown, the cast base porcelain crown and the inlay.

I have also here several inlays for supporting bridges, and some of those that were passed around by me yesterday as representing Dr. Moore's work, were designed to illustrate the means to be used for supporting a fixed bridge. I would never make one on a simple inlay without one or two little posts in it. If that inlay is to restore the tooth itself, the use of posts is not necessary, if certain mechanical principles are followed out in the preparation of the cavity, but where the inlay is not only to restore the tooth itself, but also to support absent teeth to form an attachment for fixed bridge work, I wouldn't depend on mechanically locking that inlay into the cavity, but in addition I would employ one or two little pins. If it be a dead or pulpless tooth, I would use one good-sized pin in the pulp canal, or pulp chamber of the tooth, and you will find here any number of inlays illustrating the requirements in connection with attachments for fixed bridges.

Having considered briefly the types of attachments for fixed bridge work, which we concede are the three mentioned, and that covers all that are needed for fixed bridge work, what else do we have to consider in the construction of fixed bridge work? The type of dummies we are going to put in between these attachments, the type of tooth we are going to place there instead of the tooth that

has been lost. I maintain there are only one or two necessary types of teeth for dummies in the construction of fixed bridge work. In the construction of fixed bridge work I am using replaceable teeth entirely in the posterior region. I have here a box of teeth which Mr. Brewster made for me recently, of a replaceable type and which I am using almost exclusively. I might sometimes make an all-gold cast dummy for use in the lower jaw, but where a porcelain tooth is required, I believe you can get a better result with this solid porcelain than the old style of gold with a porcelain facing. You will observe a great variety of sizes and shapes that is possible to obtain in these. Mr. Brewster has made this shape at my request, but I believe the Consolidated people are now making the Davis crown in a similar type to this, and I believe it is only a very short time until Whites and Justis will make a porcelain tooth. If you want to make two dummies, a second bicuspid and a first molar dummy, to fit in on each side, two teeth like that will give you a stronger and better and more aesthetic result than making the case in the old style. Coat your model over in between the abutment pieces with glycerine, pack a little soft wax in there and trim your wax and you can make three or four backings, if you wish. Lift that piece off and invest and cast. After that you only have to use a minute quantity of solder to attach that back to the attachment, which is already on the model, and you have built a bridge that is stronger than it is possible to build with solder, and which contains no solder to speak of and which gives occlusal surfaces as well as buccal and labial surfaces of porcelain. This will show you the great variety of sizes and shapes. You will see in some of these little platinum pegs, but these have been abandoned. This was used to give you a hole of uniform size. Then he had a pin fitted down in there. You lift that out and cast onto the pin, but it is better not to have that because if you are going to cement this tooth to place, which you will, the cement will take hold of porcelain much better, and the integrity of the attachment will be much better without platinum than it would be with platinum, and we have just simply a little oblong hole in the body of the porcelain. After I have ground the tooth to fit, I put a little glycerine on it, and I fit one end of the wax down into that hole and mash the surplus over that facing and lay it to place in my model and then trim this up nicely and lift the facings up and cast them, thus completing the strongest dummy you can use in the posterior part of the mouth.

We come now to the consideration of what we shall use in the anterior part of the mouth, where we must supply anterior teeth and fixed bridge work. Up to the present time it seems nothing will take the place of the long pin flat back facings, but I have something to show you that I am confident will subsequently take the place of this flat back facing. After I read this paper in Toronto I started to work out what kind of porcelain teeth would be appli-

cable to the anterior part of the mouth. I finally ran across in Dr. Ottolinguì's office in New York a model which had been sent to him to illustrate a paper he had read on the repairing of broken facings in bridge work, and he said when a patient came in with a facing broken off with the pins there he had taken the facing and drilled the rest of the platinum out of the porcelain and taken a dummy, drilled and ground that to fit in place, and cemented it to the other. It occurred to me that all the anterior dummies could be made with holes in them instead of pins. Several firms have agreed to put these on the market for me. I have the original models here to show you.

Here are about forty or fifty facings with holes in them. In this envelope I have some of the latest ones.

Now, gentlemen, here is what I want to call your attention to as applied to dummies for the anterior teeth. We have had several efforts along this line before, but most of them, excepting the steel facings, have been too thick and clumsy and bulky to be used in the average case, and the majority of cases demand a more or less thin tooth, for these anterior teeth, at least. I have had constructed the facings with holes in them, as I have suggested, and I immediately begin a hole in the surface of the tooth and very slightly countersink that hole, if you please. You are familiar with the hole in the base of a Davis crown, only just enough to engage the diaphragm or a double head pin. I would suggest they make these pins with a 17-gauge wire and the hole exactly in the centre, the thickness of 30-gauge, and a slight grooved end. They could make those in German silver or platinum or iridium or gold and you could buy them, grind your tooth to fit, and pick up these little pins and drop them into position in your facing. Put a little glycerine to keep your wax from sticking.

I want to maintain that it will be a stronger attachment and a stronger dummy than will the average long pin, flat back facing, which is merely attached to the backing, and which is subsequently subjected to the heat of the soldering.

In fixed bridge work, what have we done? We have three types of attachments and two types of dummies. Don't you think those two types of dummies are more or less applicable? Now, all we must do is to assemble them after selecting the types we are going to use.

DR. —————: How thick do you make the cast part between the two attachments that you are going to put your porcelain?

DR. GOSLEE: It depends on how much absorption you have. You mean the saddle underneath the dummies. I want to say to you folks something that may not appeal to you very strongly and that is this: I have always been more or less of a user of saddles in the construction even of fixed bridge work. I have always maintained that a saddle, properly adapted, offers a cleaner condition than does the ordinary type of construction. I want to

illustrate what I mean to you by these two diagrams, the ordinary type of construction usually where the neck of porcelain fitted against the gum, left the surface, which formed more or less of a hole, and against which food would accumulate and pack, and a surface which was so inaccessible as to preclude the possibility of keeping it clean. But a surface fitted to the gum like that, if well adapted, will always be cleaner; therefore I endeavor to keep this fitted, which can be kept clean by the bristles of a tooth brush and still conform to the lines of the crown. As to how much thickness I would give to these backings, I would have a narrow saddle fitted at the cervical end of my facings. I would make the lingual end of my saddle just thin enough to give me the lingual covering for that portion forming the box portion of the porcelain. Now, about using a porcelain-faced cast base crown for an anterior attachment to the bridge, with this narrow band, you would not have any surface to solder your dummies to. In the construction of that type of crown, when you are going to use it as an abutment for a bridge, why cut away your surface, pare it down like this on that surface presenting through the surface of the stubs; cut it away enough to give you an amount of gold extending down, and extend your wax, and your gold, subsequently, down, and you have all the surface room for attachment of the crown to the tooth that is needed.

REMOVABLE BRIDGE WORK.

The requirements in the construction of a removable bridge work, will equally apply, if not more so, to those of fixed bridge work, and as to attachments, I am using two forms for removable bridge work, the Roach attachment and clasps. Wherever you can use clasps, I think it is the best attachment you can use, but if you apply it to the crowns of teeth, you know what is going to be the result, and in that case I would use a Roach attachment, the inlay being cast on the Roach attachment and mounted into place. If you have a gold crown, I would as soon put the well fitted clasp as a Roach crown. The only objection to the gold clasp is it has a very injurious effect to the natural crowns of teeth, and in such instances I am using the Roach attachment.

I have here a case which is my own, illustrating the application of a removable bridge in a class of cases which is very difficult, supplying missing teeth, on one side of the arch, all of the bicuspsids and molars being gone on the left side of the jaw. Any of you who have tried to fit a case of that kind know it is hard to put anything in there that will not keep bobbing up at the back. This demonstrates how you can put in the little removable case that will be formed by running around behind the lower anterior teeth and on the floor of the mouth, by a 14-gauge wire and having an arch attachment as nearly opposite the centre of this bridge as it is possible. You will also observe this base for three Davis crowns and the crowns cemented to the base afterward. That was the

first large casting I made. It is made out of 22 carat gold, the gold being cast and the wire soldered to it, and the teeth attached afterwards. That is a means of supplying the tooth on one side of the arch in the removable way.

I have here another one of Dr. Roach's where he has made two cast bases of a bicuspid tooth with the Roach attachment soldered to the cast base. Then he has the types fitted in there. I do not see how he has any means of tightening unless he has used the split ball, or the round ball. I presume he has used the split ball. I have a very crude model of a casting of my own which I will show you, a method of supplying the missing teeth in the upper mounting teeth on one side only. The cuspid tooth on this side has been driven back because of the absence of the bicuspid tooth, posterior to it. Posterior to the cuspid is round and I wanted to saddle four teeth on that one side, all the other teeth being in, and you could see how I did that with this casting here.

In casting saddles like that, if you will make your model of plaster, and give it three or four coats of shellac and let it dry, and then a thin coat of sandarac, you could have a wholly glazed model and then paint your wax on that model and then you have as thin a saddle as you want. I have only seen one wax that is thin enough, but you can get it by melting it in a spoon and then painting it on. I would advise you to make that in two parts, attach the two pieces together with solder. The same principle in making fixed bridges, making your dummies in sections of two, three or four, and then cementing them together. In the use of this thin wax there is a danger of the weight of the investment changing the shape, but you could put in a little platinum wire and that will stiffen the wax saddle and it subsequently becomes, of course, a part of the casting. In this casting he has attached directly onto the tube, and in this case he has cast upon a base of radio platinum wire. I call your attention to the little spurs of metal he has stuck into the wax to act as a means of ensuring attachment to the vulcanite. In this work, all we have to do is get a thin model and attach the wax to it and cast, and without the use of dies and counter dies. In some of these cases instead of using 12 or 14-gauge wire, we have put a little piece of wax there and cast that centre base, casting it in clasp metal. This conforms a little better to the outline of the mouth and it does not obstruct the movements of the tongue as the piece of wire would.

I have here a model sent to me from New York recently, showing his method of making a removable bridge supplying posterior teeth on one side of the mouth. It is similar to the arch attachment, only it is an extension from the fixed part of the work. In this cast he has two crowns made to fit the roots of the two bicuspids and then there is a tube which fits over that placed in position there and the base of vulcanite made to fit and this is locked in

there. The only advantage is you don't have to go around the mouth to hold it there.

Another thought I want to mention in particular is this: There is a good deal of talk at the present time as to the possible advantages of casting directly onto porcelain, and some contend that they want to do it, and that it possesses advantages over cementing the tooth onto the model afterwards, and the greater strength will be possessed by the porcelain than when we have to heat to cast. I do not think it is possible to get these totally out without certain checks in them, or at least if without certain checks, without weakening them. There is some talk about being able to cast in one machine better than in another, but it is not true. Casting against porcelain is simply a question of having your porcelain heated up to about the degree of the fusing metal which you cast and if you do that you can cast in one machine just as well as in another, and without any danger, too. I believe if you cast against any porcelain tooth and no matter how slowly you cool it down and if you will look at it under a magnifying glass you will find it filled with innumerable checks and you will agree with me that it is much weaker. I have as an illustration central incisors backed up with wax; one is cracked and the other is not. It shows the uncertainty, at least; two teeth put through together in one cast, one cracked and the other isn't. If there is that element of uncertainty, there is absolutely no advantage in it, of course.

I do want to take occasion to tell you gentlemen of the Western Canada Dental Association of the pleasure I have had in being your guest and for the many courtesies you have extended to me during my short stay in your city. I want to assure you that I am very, very grateful to each and every one of you for the attention you have given me, and if I have been the slightest possible benefit to any of you, I will feel more than repaid for my trip. I thank you very much, one and all.

DR. BUSH: Mr. President, I would make a rather extensive motion, but before saying so, I think I have voiced the sentiments of everyone in this room that the 29th and 30th of March of this year will be red letter days with everyone in the room. I do not remember of ever having heard a more interesting series of lectures and clinics than those given us by Dr. Goslee. I think everyone feels much the same as I do, and I think we are indebted greatly to this member of the profession for his kindness in coming to us here, and we can only make the small reparation by giving our heartiest vote of thanks and making him an honorary member of this Society. In moving this vote of thanks I feel hardly able to express myself and, as I say, I have never felt as I have at this time; and another thing, in order to save time, I would suggest or would like to ask if Dr. Goslee would convey to that other great man whom to know is to love and respect, Dr. C. M. Johnson, our greetings.

DR. —————: I take very much pleasure in seconding this motion. It is a great privilege to have Dr. Goslee with us; we ought to feel proud of his pleasure with us; it has been my privilege to know Dr. Goslee since the fall of 1899, and you can take my word for it, he has come to Winnipeg at a very great sacrifice and we ought to feel proud of having him with us. When I saw Dr. Goslee at the end of January, he was in doubt as to whether he could get away to Winnipeg or not, and I still wonder at having had the persuasive powers that I have. However, we succeeded in getting him here and I take very great pleasure in seconding the motion.

The motion carried unanimously.

THE PRESIDENT: Dr. Goslee, on behalf of the Dental Society of Western Canada, I want to extend to you the thanks for your presence here, and the instruction that you have given every one of us. I am sure that your visit here will send every one of us back to our offices better dentists, if not, with the ambition to be so. And you have explained the points in a simple manner, more so than I think it possible for any other man to have done, and there is no one in the room who is not able to understand the manner in which you have illustrated your principles and methods. I take great pleasure in making you an honorary member of this Society, and it may not be a very great honor at the present time, but we are living in hopes of having one of the best societies in Canada, and I am sure it is a greater pleasure than I can express at having had a meeting with you and having a talk with you and getting the instruction which you have given us.

DR. GOSLEE: Mr. President, Ladies and Gentlemen, I want to assure you of my gratitude to you again at this evidence of your appreciation of my very humble efforts. I want to assure you of my thanks and appreciation of the honor which you have conferred upon me in making me the honorary member of your Society, and I can assure you, sir, that you need not have made any reference to the fact that it might not be an honor to me, because it is an honor to me. I feel it is an honor to be an honorary member of a Society of such gentlemen as you have proved yourselves to be during my stay in Winnipeg. Knowing what I do now, I would never have forgiven myself for not coming, and I have enjoyed every minute of my stay with you, and I shall look forward to prolonging my stay at some future time.

The meeting then adjourned.

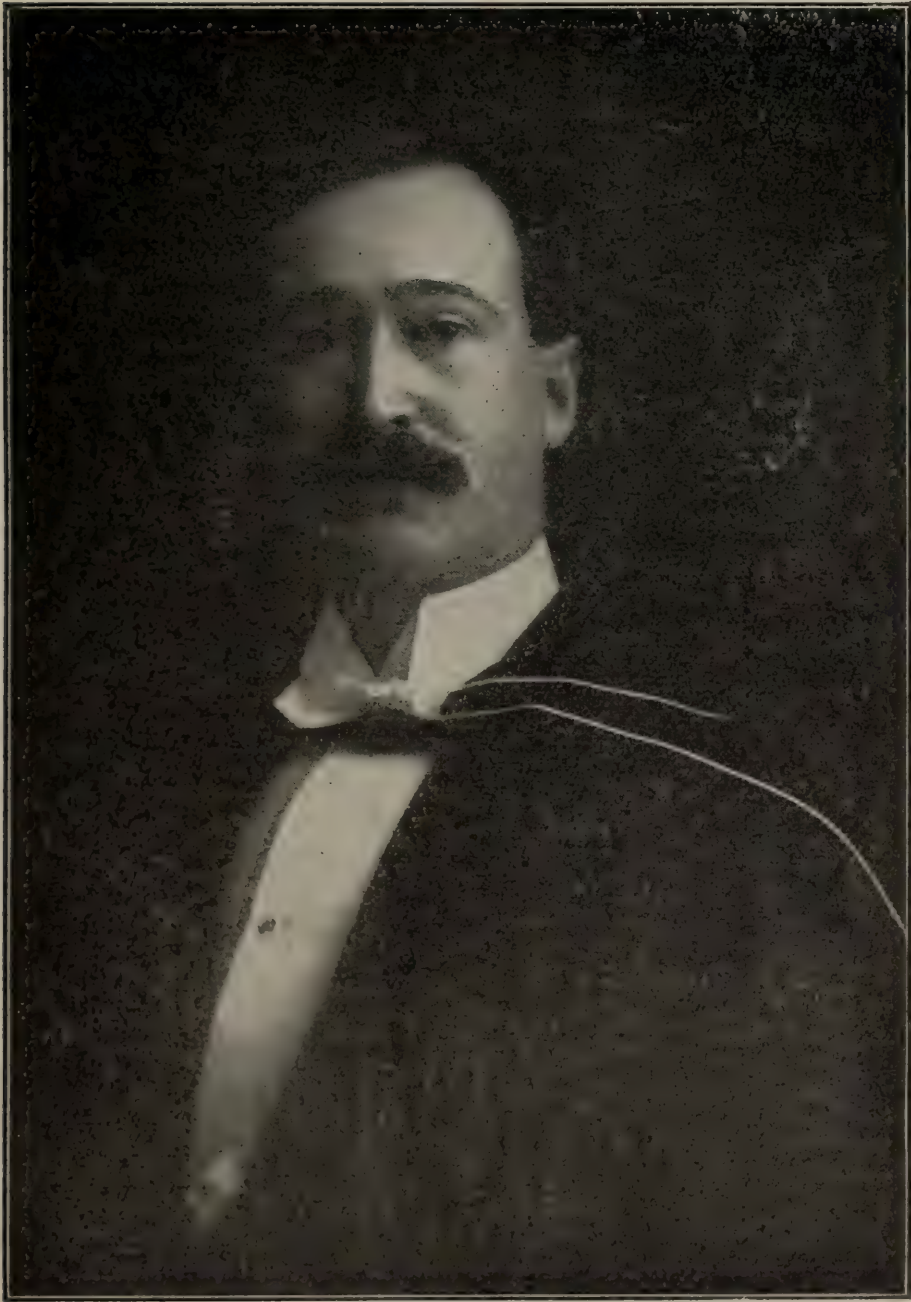
Proceedings of Dental Societies

FORMAL OPENING OF THE NEW DENTAL COLLEGE, TORONTO.

Although the new Dental College building has been in use since the 12th of October, it was not until almost the close of the autumn session that it was completed in all respects. The Board of Directors conceived the happy idea of holding the formal opening during the visit of the Institute of Dental Pedagogics. It would have been better if the student body could have been present, but this was impossible, as the majority were away for the Christmas vacation. The profession of Ontario and of Canada are under a debt of gratitude to the Board of Directors for arranging and carrying out so dignified and impressive a ceremony in connection with the opening exercises. Inasmuch as those present were the guests of members of the Royal College of Dental Surgeons, the Board could hardly issue personal invitations to the profession without sending one to each dentist in Ontario. Instead of doing this the Board gave notice of the event in the dental journals. Quite a large number of dentists were present from different parts of the province. There were not a few graduates who came from the far West of Canada.

At two o'clock the members of the Institute were present to inspect the building, under the guidance of the members of the teaching staff. At three o'clock Dr. and Mrs. J. Branston Willmott, Dr. and Mrs. A. E. Webster, Dr. H. R. Abbott of London, Dr. A. M. Clark of Woodstock, and Dr. R. B. Burt of Hamilton, received the guests. While the reception was in progress, the guests of honor assembled in the reading room and took their places on the platform as soon as the assembly hall was filled. Those on the platform were His Honor the Lieutenant-Governor of Ontario, Col. Gibson; the President of the Royal College of Dental Surgeons of Ontario, G. C. Bonnycastle, Bowmanville, Ont.; Sir Charles Moss, Chief Justice of Ontario; Hon. Dr. Pyne, Minister of Education of Ontario; President Falconer, of the University of Toronto; J. Branston Willmott, Dean of the School of Dentistry of the Royal College of Dental Surgeons of Ontario and member of the Board of Directors; Edward C. Kirk, Dean of the Dental Department of the University of Pennsylvania and editor of the Dental Cosmos, Philadelphia; Prof. W. T. Stuart, of the Royal College of Dental Surgeons; Dr. Ellison Hillyer, of New York, President of the Institute of Dental Pedagogics; Dr. Reeve, ex-Dean of Department of Medicine of the University of Toronto.

The hall was well filled with visitors and their friends. Dr. Bonnycastle, President, acted as chairman, and in his opening remarks expressed the pleasure and pride it gave him to preside at so important a ceremony as the dictation of such a magnificent



Dr. G. C. BONNYCASTLE, L.D.S., D.D.S.

Bowmanville, Ont.

President of the Royal College of Dental Surgeons of Ontario.

building to the cause of education. He also expressed his pleasure in seeing so many guests from the United States, and especially so many ladies in the audience. In a hurried review the President said the Royal College of Dentists was incorporated in 1868, with a membership of 150. They now had 1,415 registered graduates, 940 of whom were still practising in Ontario. In all, 1,768 had been registered as students, 1,300 of whom had graduated, 220 were still pursuing their studies, and 240 had abandoned the profession. In 1875 the School of Dentistry was established, with 11 students, and in 1880 the college had become affiliated with the University of Toronto. In 1896 the old building at 93 College Street had been erected, and it had been found necessary to twice enlarge it, and before the present building was decided upon the accommodation at the old college had been found to be quite inadequate. The new building, with the land, cost \$140,000, and the equipment about \$20,000. It has accommodation for 350 students, and at present there are 200 registered. It is now to all intents and purposes a Dominion college, as graduates can, on passing the Dominion Dental Council, practice in every province of Canada with two exceptions. From the outset the Dental College had been self-sustaining, and the present building had been erected from the money derived from fees. The equity in the property was owned by the profession, and any surplus was put to providing further equipment.

President Falconer said, the faculty of the College, the profession, and the Board of Directors were to be congratulated for having so magnificent a building in which to teach dentistry. He also congratulated the Board in having the foresight to erect a building of a capacity of 350 students, while there were only 200 in attendance at present. He predicted a great future for the institution, and pointed out that a steady growth is much better than rapid increase, which always disorganized teaching and accommodation. The President made some very significant remarks about the relation of the School of Dentistry and the University. While he gave no hint of action in the near future, he expressed the hope that the department of dentistry would become more closely associated with the University than at present. He said the Board of Governors would lend a sympathetic ear to any proposals emanating from the dental profession. The President took much pains to point out the value of science in education. A knowledge of science gives the possessor the power of approaching new conditions with confidence. He is able to apply old facts to solve new problems. The man of science is the progressive man; the so-called practical man is a bungler in the presence of new conditions. Only a scientifically trained mind can cope with many changing conditions of a new calling and a new country. A professional man is set apart to serve the public, and in consequence has certain privileges which brings with them certain

responsibilities. The standing of a profession depends upon its appreciation of its obligations to the public.

The Hon. Dr. Pyne, Minister of Education, next spoke. He said during the years of his occupation of the position of Minister of Education his duties have called him to visit many parts of the province. One outstanding feature of education had impressed itself upon him. That wherever there was a good high school, public school or college, there had always been some great teacher behind it all. From personal acquaintance and long observation he had been convinced that the School of Dentistry had a great teacher behind its marvelous progress. It must not only have had a great teacher in Dr. J. B. Willmott, the Dean of the school, but also have had a good corps of teachers. He expressed his pleasure and satisfaction in having one more building added to



the others which go to make up the educational system of Ontario in which he was so much interested.

Dr. Ellison Hillyer, New York, congratulated the faculty of the College on having such an opportunity to teach dentistry. He said this was the finest dental building and equipment he had ever seen. Dr. Hillyer said he had not seen either the new building just opened at Boston or at Ann Arbor, but of the rest on this continent he was frank to say this was the best.

Dr. Kirk then delivered what was the set address of the day (see page 1 of this issue).

Lieutenant-Governor Gibson, on rising to declare the building open, said he was an old friend of the profession. He well remembered when an amendment to the dental Act was placed in his hands to pilot it through the devious ways of the Legislature.

At that time, as now, men in public life were very cautious in undertaking what might prove to be an unpopular movement. After due consideration and consultation with friends, he undertook the bill and succeeded in having it become law. He said he looked upon it as one of the brightest spots in his public career, because he gave a helping hand to a calling which has shown itself worthy of public confidence. In after years he remembered how frequently applications came before the legislature for private legislation to give a license to practice dentistry. The Lieutenant-Governor said his old friend, Dr. Willmott, knows on which side of the question he was always found. In closing, he declared the building open, and hoped for it a long and useful career.

Refreshments were served in the north end of the infirmary, while the visitors and guests inspected the building. Those most competent to judge, expressed themselves as being surprised and pleased with the plan and appointments of the building.

INSTITUTE OF DENTAL PEDAGOGICS.

At the opening of the seventeenth annual meeting of the Institute of Dental Pedagogics in the King Edward Hotel there were about seventy teachers, including twenty-one Deans, representing about thirty of the largest dental colleges in America. Controller Harrison made an address of welcome to the delegates, representing the Mayor, and Dr. T. W. Brophy, Dean of the Chicago College of Dental Surgeons, responded for the Institute. The address of the President, Dr. Ellison Hillyer of the New York College of Dentistry, dealt with matters connected with the profession, emphasizing especially the need of uplifting and maintaining the standards of the profession. Similar views were advocated by Dr. J. B. Willmott, Dean of the Royal College of Dental Surgeons; Dr. S. W. Bowles, Georgetown University, and Dr. W. L. Fickes, University of Pittsburgh. Dr. H. M. Semans gave the report of the Committee on Text-books, and the need of text-books better adapted to the needs of students was emphasized very strongly, not only by himself, but by Dr. J. R. Broome, New York city; Dr. A. E. Webster, and others. The discussion aroused by Dr. T. C. Borland, Chicago College of Dental Surgery, in his paper on "Anatomy: What to Teach," was very animated, all agreeing with and illustrating from their own experience his contention that the dental student should be given a more extensive knowledge of the anatomy of the entire body. Dr. Stewart L. McCurdy of the University of Pittsburgh, and Dr. W. T. Stuart of the Royal College of Dental Surgeons, paid special attention to this, and described some of their own teaching methods.

At this point Dr. Leon Williams, a distinguished practitioner of London, England, who has given special attention to the matter of securing dentures that approximate more closely to the natural forms of teeth, spoke. He has undertaken a double task, trying

to educate the profession to demand a better form of teeth and to induce the manufacturers to make them. Dr. Snow, Dean of the Buffalo School, among others, seconded all that Dr. Williams had said.

OFFICERS OF THE INSTITUTE OF DENTAL PEDAGOGICS

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Next place of meeting—Washington, D.C.

OUTLINE OF ADDRESS TO Y. M. C. A. ON HYGIENE OF MOUTH.

By F. A. Stevenson, Montreal, Que.

The order and usual time of eruption of deciduous and permanent Teeth described.

Anatomical divisions of a tooth and alveolar process explained.

Functions of Teeth, in Speech, Facial Outline and Mastication.

Normal occlusion, explained and illustrated; also importance of 1st perm. molar. Whatever interferes with normal occlusion interferes to greater or less extent with all the functions of the teeth. Three chief factors, viz.:

1st. Irregular teeth—congenital and acquired; under acquired mentioned, mouth-breathing, thumb-sucking, extraction, etc.

2nd. Caries.

3rd. Calculus and loosening from absorption.

Finally, importance of cleanliness, brushing explained, periodical examination, etc.

Dominion Dental Journal

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VOL. XXII

TORONTO, JANUARY 15, 1910

No. 1

THE PAST AND FUTURE OF THE DOMINION DENTAL JOURNAL.

With this issue, the Dominion Dental Journal enters upon its twenty-second year of publication under the present name. It was at first published under the name of The Canada Journal of Dental Science. The first number appeared in June, 1868. It contained thirty-two pages of reading matter. Under original contributions were "Nitrous Oxide as an Anaesthetic," by W. B. Day, M.D., L.D.S., Kingston, Ont., President of the Ontario Dental Society; "Qualifications Required of a Dental Student," by C. S. Chittenden, Dentist, Hamilton, Ont. This is a most interesting article. "Remarks on the Pathology of the Gums," by Harrison Ross, D.D.S., Quebec; "Diseases of the Maxillary Sinus," by J. O'Donnell, L.D.S., Peterboro, Ont.; "Contributions," by W. H. Waitle, D.D.S., Liverpool, England; Proceedings of the Ontario Dental Society. Editorial, "Introductory";

“Dental Legislation in Ontario”; “An Act Respecting Dentistry”; “The Use of Oxychloride of Zinc Over Exposed Pulp”; “Pivot Teeth.” We quote these headings so our readers may know the subjects under discussion in dentistry in Canada over forty years ago.

The editors and proprietors of the Canada Journal of Dental Science were W. G. Beers, C. S. Chittenden, R. Trotter. Place of publication, Hamilton, Ontario. When the third volume was reached the place of publication was changed from Hamilton to Montreal, where the editorship remained in the hands of Dr. Beers until his death, December, 1900, when its present editor took charge. The early trials of both publishers and editors were no sinecure. More than once publication was suspended for the want of funds to get out the issue. In fact the love of laying the foundation of dental literature was so large in Dr. Beers’ heart that for years he published the Journal at a loss of over a thousand dollars a year.

The cover page of this issue is made as near as can be the style of the cover page which appeared on The Canada Journal. The cut containing the words “Dental Science, Art and Education,” is the same as that which appeared on the title page of the third volume in 1872. This cut has appeared on the title page of every volume since. It is found in each December issue.

The objects of the Dominion Dental Journal to-day are the same as those set forth in the first issue, i.e., Dental Science, Art and Education. It is interesting to go back over the work of years ago and note the efforts made to attain the objects set forth. There were strong men in dentistry forty years ago, but there seems to have been a period about the early eighties when the profession was taking a breathing spell in preparation for a new start. The Ontario Dental Society was disbanded. The Dental Journal ceased publication. The dental schools were poorly attended. In both Ontario and Quebec there were dissensions among the leaders of the profession. In 1889 the Dental Journal resumed publication as a quarterly under its present name. In 1891 it was issued bi-monthly, and since 1893 it has been issued monthly. No small part of the credit of the beginning of publication again was due to the late C. H. Hubbard. In 1889 the Ontario Dental Society was re-organized, and shortly afterwards the Dental Act of Ontario was amended so that dentists might vote for directors by mail, and the province was divided into electoral districts. In 1893 the School of Dentistry was re-organized, and in 1896 the new building was erected on College Street, Toronto. These events followed each other rapidly, and indicate a visible period of progress which was really an expression of what was being prepared for in the preceding years of apparent inactivity.

Through all these years the Dominion Dental Journal stood for dental science, art and education. It was the means of expres-

sion for the profession. It has had a good deal of pioneer work to do but stands to-day as the only record of the profession of dentistry in Canada. This feature alone makes its volumes invaluable. It publishes from month to month much matter which is a mark of progress in dental science, art and education in Canada. It stands for progress and has to its credit many of the most notable advances in the profession in Canada. Within one year and a half it has increased from a seventy-two page magazine, issued rather irregularly, to a hundred page publication issued on the 15th of each month. Its subscribers have increased over three-fold. It has published the Canadian Dental Directory, a neatly bound volume of two hundred pages, which it will send to every Canadian subscriber for 1910. It has reporters and associate editors all over the Dominion. It has a system of collecting dental happenings wherever the printing press is found. It spares no expense in preparing illustrations for articles for publication. It is the mouthpiece of the profession of Canada. It begins the year 1910 by removing advertising matter from the cover page and making other changes which will bring it into harmony with the ideals it stands for.

BANQUET TO VISITORS IN TORONTO.

The Board of Directors gave a banquet to the Institute of Dental Pedagogics, at McConkey's restaurant, December 30th, 1909. About one hundred guests and their wives were present. Dr. Bonnycastle acted as chairman, and Dr. Thornton as toastmaster. The Board followed the English custom of having one principal speaker. In this they were fortunate in having J. A. Macdonald, LL.D., editor of the Toronto Globe, as principal speaker. Dr. Macdonald had just returned from England, and spoke on the present crisis in the motherland. This was an undoubted treat for the visitors. They were delighted to hear the subject discussed by someone at first hand; most of the reports come through channels which color them beyond recognition. Dr. Macdonald said the whole key to the solution was that 80 per cent. of the land is owned by 3 per cent. of the people. His address was eloquent, forceful, and sufficiently radical to satisfy the most extreme.

Dr. Ellison Hillyer spoke to the toast of the Institute, and said that the Institute was the most enjoyable and profitable association of dentists he had any knowledge of. No politics, no bickerings, no jealousies, and no ambitions,—all working together for one cause.

Dr. Clyde Davis, Lincoln, Nebraska, spoke to the toast to "An Ideal Democracy," which was defined as that state when there would be no police, no soldiers, no navies, no law-makers and no laws.

"The Canadian Abroad" was responded to by Dr. Don. M. Gallie, Illinois University, Chicago. Dr. Gallie said his home was Canada, having been born in the village of Oakville, within eighteen miles of Toronto. He said there were almost as many Canadians in Chicago as in Toronto, and that many of them were to be found in high places in educational and financial affairs. He said four-fifths of the Episcopal Bishops of the United States were Canadians. Many of the Bishops of both the Catholic and Methodist churches are Canadians. The president of more than one prominent university claimed Canada as his birthplace. He closed by saying that he was proud of the land of his birth, and proud of the land of his adoption, and proud of his Canadian wife.

Dr. Hipple, Dean of the Dental Department of Creighton University, Omaha, also responded to this toast. Dr. Hipple left Canada about twenty years ago, having practiced in Stratford, Ontario, for some years. Dr. Hipple said that he has often been surprised that the people of the United States knew so little about Canada, and what he had against them was that they refused to learn anything more. As an example, his little daughter of ten years old, showed him her geography, in which a long description was given of the Esquimaux, and the snow-huts, and the cold weather, and completed the description by saying Montreal and Toronto were flourishing cities. He said his child knew there was more to Canada than the geography told, because she had visited in Canada many times and saw no Indians nor snow-houses. He said, if you told an American that Canada was larger than the United States he would think you were a fool, and that wheat could be grown as far north of the boundary line as the boundary line is north of Mexico; they would think you were a common liar.

At the close of the speeches Dr. Gallie sang "Illinois." Following this was sung "God Save the King," and "My Country, 'Tis of Thee."

THE INSTITUTE OF DENTAL PEDAGOGICS.

The work of the Institute of Dental Pedagogics goes on apace each year. The meeting just closed in Toronto was one of the busiest in the history of the institute. Many valuable papers were read and fervently discussed, new plans were laid for future work. The nomenclature of the profession is being compiled and defined. New text-books suitable for students' use are in course of preparation. An index of all dental literature is being prepared. Methods of teaching are being improved.



The above is a cut of the memorial window presented to the new Dental College by the dental profession of Ontario at a banquet held in the King Edward Hotel April 29, 1900, in honor of Dr. J. Branstetter Willmott, and in commemoration of his services to the cause of dentistry. The window has recently been placed at the head of the 1st landing in the rotunda of the college.

J. LEON WILLIAMS AND ARTIFICIAL TEETH.

One of the distinguished visitors to Toronto during the Christmas holidays was J. Leon Williams, of London, England. Dr. Williams, as every reader of dental literature knows, was the first to demonstrate the gelatinous plaque as a factor in the cause of dental caries. Dr. Williams is now interesting himself in having artificial teeth manufactured which shall more nearly resemble the natural ones than any now on the market. He proposes to have fewer shades and fewer forms, and the cuspids different in color from the others in the set. Dr. Williams has found that teeth as now manufactured are not made to articulate with each other.

Each set is made, and if they look to be the same size they are placed on a card as uppers and lowers of the same set. The width of the molars and bicuspid in the new forms are more nearly the same as the natural teeth. Dr. Williams is aiming to have the manufacturers use the molds he suggests. To this end he is getting the assistance of as many dental organizations as he can.

THE DAILY PRESS.

During the meetings of the Institute of Dental Pedagogics, which were held in Toronto, December 28, 29, and 30, the daily press of Toronto made reports which were a credit to them. The Institute has held seventeen meetings, and we may safely say that no more dignified and sympathetic reports of its proceedings ever appeared in the public press. It is one thing the profession of Canada should feel proud of. Not an undignified or would be "smart" expression can be found among all the reports. Besides the reports, which received such complimentary mention from our confreres abroad, many of the dailies wrote editorials, which show the esteem in which the profession is held. We quote one in full from the Toronto World of December 30, 1909:

We Salute the Dentist.

The greatest friend of humanity in these days is the doctor, whether as a hygienist in connection with public health and the prevention of epidemics or other diseases; or as a general practitioner; or as an operating surgeon; or as a dentist.

We believe the dentist can and does more for the race than any other branch of what for a better term we call the healing art. If you asked us to say what was at the bottom of good health in this country of ours we would say good teeth and good footwear. The dentist can save the people's teeth or give them new ones, the teeth are behind digestion, and digestion means health. Therefore, The World pays tribute to the master dentists now in the city and the splendid new college they are opening for purposes of instruction.

The dentist is worthy of all the deference and respect that we pay to the doctor; he is a true friend of the race, and if you get to him in time he can give you more for your money than any one we know of.

FOR SALE.

Large Dental Practice, in Manitoba City; with waiting room, operating room, and laboratories; contents complete. For particulars write, or call upon, The Temple Pattison Co., Ltd., Toronto, or The Dominion Dental Mfg. Co., Montreal.

Editorial Notes

Dr. Riggle will begin practice in Outlook, Sask., January 1st, 1910.

Dr. Geo. T. Kennedy, St. Thomas, was nominated for alderman.

Dr. Arthur T. Silher was nominated for mayor of Simcoe, Ontario.

Dr. C. C. Lumby was nominated for the Board of Education of St. Thomas.

Dr. Clayton, of Nelson, B.C., has opened a dental office in Prince Rupert, B.C.

Dr. J. M. Deans, of Hespeler, is removing to Galt, where he will continue to practice his profession.

The new building of the Dental School of Harvard University was dedicated on December 8th, 1909.

Dr. R. D. Sloane wishes to announce that he has taken over the dental practice of Dr. A. T. Watson, Leamington, Ont.

A combined meeting of the Canadian Dental Association and the Ontario Dental Association will be held in Toronto, May 30, June 1, 2, 1910.

The Dominion Dental Journal extends its sympathy to Dr. Wallace Seccombe in the death of his mother, which occurred in Toronto, December 27th, 1909.

Dr. P. J. Gallagher, of Moncton, N.B., has purchased the practice of Drs. Gallagher and Tooms and will continue the practice under his name in the Fowne's building.

A full report of the December meeting of the Toronto Dental Society will appear in the February issue, together with all the illustrations which Dr. Black used in his lecture.

DENTISTS ELECTED IN THE RECENT MUNICIPAL ELECTIONS HELD IN ONTARIO.

Drs. Pinard, Stanley and Bower, as aldermen in Ottawa.

Dr. R. L. Revell, alderman in Woodstock.

Dr. C. C. Lumley, school trustee, St. Thomas.

Dr. C. H. R. Clark, school trustee, Newmarket.

Dr. D. Watson, school trustee, Brantford (elected by acclamation).

Dr. W. F. B. Colter, member of council, Sarnia.

Dr. W. R. Wilkinson, member of the council, Berlin.

Dr. S. Gowan, member of the council, Brockville.

Dr. S. R. Clemes, member of the council, Collingwood.

Dr. Jas. McPherson, member of the council, Paris.

Dr. H. W. Branscombe, member of the council, Picton.

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Original Communications

THE PRESERVATION OF THE INTERPROXIMAL GUM SEPTUM.

Arthur D. Black, B.S., M.D., D.D.S.

*Presented before the Toronto Dental Society, Dec. 28, 1909

I have chosen for presentation at this time many little technical items and wish to call your attention to the importance of the utmost care to these details as a preventive measure against the very serious results which often follow their neglect. As I study the cases which have come under observation in school and society clinics and in my own office, I am of the opinion that more teeth are eventually lost as a result of carelessness, neglect, and lack of foresight on the part of dentists than are permanently saved by our operations. It is to impress the very serious results that so often follow the apparently slight neglect, in the hope that greater watchfulness and care may be employed, that this subject is presented.

This paper may be divided into three parts: First, the consideration of the normal interproximal space, contact point and gum septum; second, the restoration of the normal interproximal space in operative procedures; third, the results of failures in the maintenance of proper conditions in this space.

The Normal Interproximal Space.

On account of considerable confusion that evidently exists in the minds of the members of the profession, also on account of the unsatisfactory nature of the definitions of certain terms as used in dentistry, and in order that our understanding may be clear, I am prompted to attempt more exact definitions and descriptions than have heretofore been written, including the suggestion of one term

*This paper is as correct an after-writing as could be made of a lecture delivered from brief notes, illustrated by about fifty stereopticon slides. It should be stated that the exact wording and full descriptions of the terms interproximal space, embrasures, septal space, etc., were not completed until after the meeting, and the descriptions here presented were undertaken partially as a result of statements made by others in the general discussion at the meeting, although less complete descriptions of these spaces were given in the lecture.

new to dental nomenclature—the word “septal.” In writing the definitions, I have consulted several dictionaries and glossaries, but as no two are exactly alike, and as I have copied none exactly, do not therefore give credit to any particular one. The principal new thing is the accurate description of the spaces, rather than the definitions.

Proximal contact or contact point: The touch point or contact point between any two teeth when they come together in the line of the arch.

Interproximal space: The space between the crown portions of any two teeth proximal to each other in the arch. This space is limited in the mesio-distal direction by the mesial and distal surfaces of the teeth, in the bucco-lingual direction by the planes of the buccal and lingual surfaces of the teeth, in the occluso-gingival direction by the plane of the occlusal surfaces (or incisal edges) of the teeth, and by the plane of the margin of the alveolar septum. Normally, the central portion of this space from the margin of the alveolar septum to the contact point is filled by gum tissue. Between the bicuspid and molars the shape of this space may be described as that of a rectangular section of a biconcave sphere, one surface of the rectangular section being much nearer than the other three to the point of nearest approach (contact point) of the two concave surfaces. See figure 1. Between

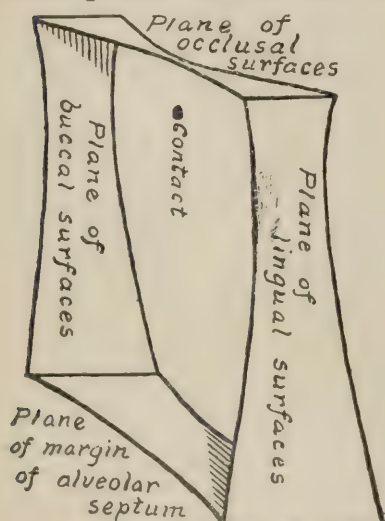


Fig 1

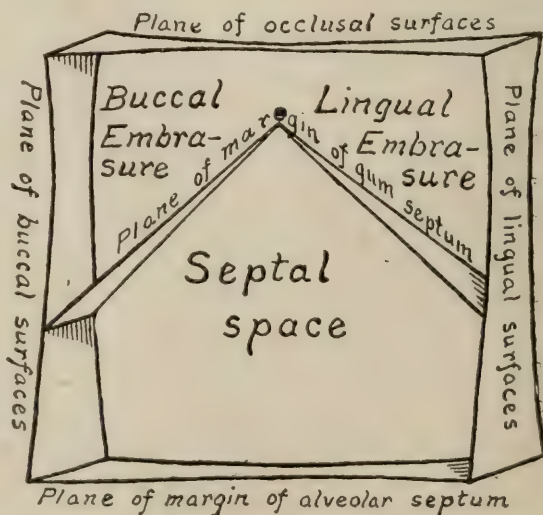


Fig 2

Figure 1.—Diagram to illustrate shape of interproximal space. If the rectangular frame is placed between two spheres which are in contact at the point indicated, the space within the frame and between the two spheres would be that of an interproximal space between the bicuspid and molars, a rectangular section of a biconcave sphere.

Figure 2.—Diagram to illustrate the three divisions of the interproximal space. The buccal embrasure consists of that portion of the interproximal space to the buccal of the contact point that normally is not filled by gum tissue. The lingual embrasure consists of the corresponding portion of the interproximal space to the lingual of the contact point. The septal space consists of that portion of the interproximal space which is normally filled by the gum septum. This space is that of a pyramid set upon a rectangular solid.

the incisors and cuspids the shape of this space may be described as that of a triangular section of a bi-concave sphere, the apex of the triangular section being much nearer than the other two

angles to the point of nearest approach (contact point) of the two concave surfaces.

The Interproximal Space may be divided into three parts as follows:

The buccal (or labial) embrasure: That portion of the interproximal space to the buccal (or labial) of the contact point that normally is not filled by gum tissue. See figure 2.

The lingual embrasure: That portion of the interproximal space to the lingual of the contact point that normally is not filled by gum tissue. See figure 2.

The embrasures are spaces of irregular pyramidal form, with the apex at the contact point, the base at the plane of the buccal (or labial) or lingual surfaces of the teeth, and the four sides of the pyramid corresponding with the planes of the mesial and distal surfaces of the proximal teeth, the plane of the occlusal surfaces (or incisal edges), and the plane of the margin of the interproximal gum septum. See figure 2.

The septal space: That portion of the interproximal space that normally is filled with the gum septum. The shape of this space is that of an irregular pyramid on a rectangular base, with the apex of the pyramid at the contact point, the base at the margin of the alveolar septum and the four sides of the pyramid corresponding with the planes of the mesial and distal surfaces of the teeth and the planes of the margins of the buccal (or labial) and lingual portions of the interproximal gum septum. See figure 2.

Corresponding to the embrasures and septal space the proximal surfaces of the teeth may be divided into three triangular areas; the buccal (or labial) embrasure area, the lingual embrasure area, and the septal area. Lines drawn from the contact point parallel to the margin of the buccal (or labial) and lingual portions of the normal interproximal gum septum would separate these areas. See Fig. 3.

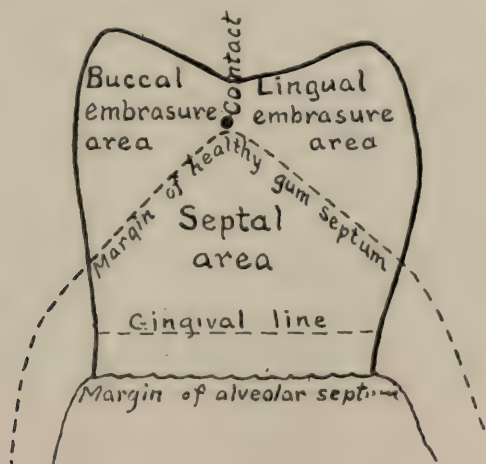


Figure 3.—Diagram to illustrate the areas on the proximal surface of a tooth. The buccal embrasure area, the lingual embrasure area and the septal area are names given to those portions of the proximal surface of a tooth which correspond to the similar divisions of the interproximal space.

It will be noticed that the septal area is much the larger of the three, that the normal healthy gum septum in the average case covers about two thirds of the enamel of the proximal surface. Particular attention is called to this fact in connection with our rule in cavity preparation that the gingival margin of proximal cavities shall be placed under the free margin of the healthy gum septum. This does not mean that the gingival margin should, in the average case, be carried close to the gingival line of the tooth; it means that it is generally necessary to make but little extension in this direction.

The normal contact between two teeth should be a single touch point, such as is made by two marbles. Figures 4 and 5, buccal

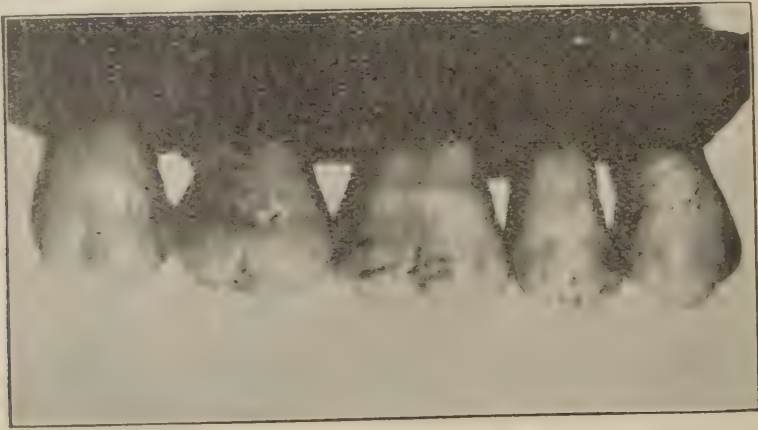


Figure 4.—Buccal view of bicuspids and molars showing interproximal spaces. (Black).

and occlusal views of upper bicuspids and molars, serve to illustrate the shapes of the interproximal spaces and the forms of the contact points. In both views the convexities of the surfaces as

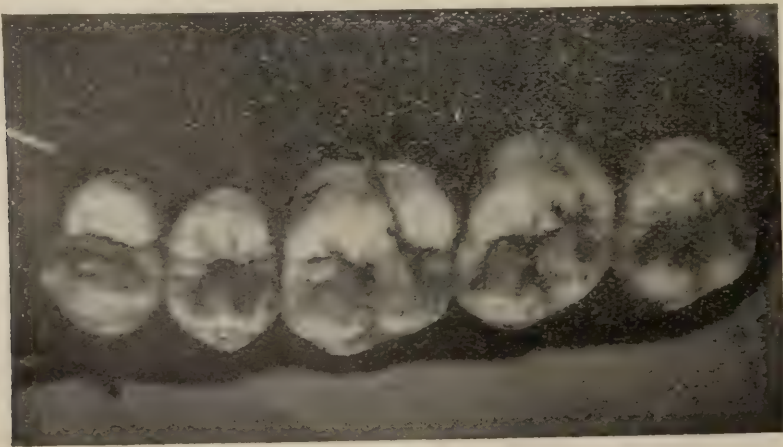


Figure 5.—Occlusal view of bicuspids and molars showing interproximal spaces. (Black).

they approach the contacts will be noticed. Particular attention is called to the width of the septal spaces at the margin of the alveolar process and the shapes of the mesial and distal surfaces of the teeth. It will be noticed that there is, in several of these surfaces

a slight concavity to the gingival of the convexity which forms the contact. This gives room for a thicker gum septum below to support the margin of the septum. This concavity should be reproduced in many of our filling operations. In the occlusal view the variations from the normal contact between the molar teeth will be noticed. There is more often a variation in the width of the embrasures than in the actual point of contact, though both occur. Such variations less often occur in the occluso-gingival direction, as seen from the buccal view.

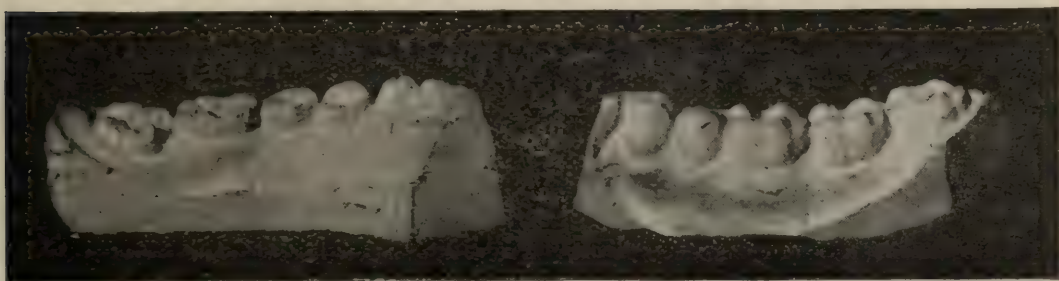


Fig 6

Fig 7

Figure 6.—Normal gingivae, lingual view, boy 13 years old. Photograph of east.
Figure 7.—Normal gingivae, buccal view, man 21 years old. Photograph of east.

Figure 6 shows a lingual view of the lower teeth and gums of a boy thirteen years old; Fig. 7, a buccal view of the lower teeth and gums of a man of twenty-one. The difference in the height of the gingivae in the two cases, and the fullness and height of the gum septi in both will be noticed. It should be our first duty for every patient to examine carefully the condition of these soft tissues and note any deviations from the normal.

Restoration of the Normal Interproximal Space.

A clear understanding of the preceding statements, also of the anatomical forms of the teeth, soft tissues and bone, and their relations to each other, is unquestionably necessary if we are to reproduce and maintain these forms and relations in our operations. The question of next importance is that of separation, for it is impossible to regain lost width of interproximal space, nor to restore proper contour or contact, even in cases in which no space has been lost, without separation. We must not only regain lost space, but must have sufficient additional space to allow for the proper finishing of the filling. In obtaining the necessary separation, the two most important considerations are the avoidance of injury to the interproximal gum septum, and the avoidance of pain. To my mind, no method compares, in fulfilling these requirements, with the separators designed by Dr. S. G. Perry, of New York, and the subsequent modifications of the same.

Of the first model, six sizes were placed on the market, and subsequently six others—twelve in all. Later came the universal model, intended to replace the entire twelve. It will not fit in quite all of the positions of the other twelve, and the bows are made more bulky by the adjustment screws, yet it has several

advantages which make it preferable to any other; unless one purchases the entire twelve without the screw bows, and I can think of no better investment for a dentist.

There is a right and a wrong way to apply this separator. If it is done in the right way there should be very little and generally no pain. Patients so commonly associate the idea of pain with the word separation, on account of the punishment inflicted by rubber and other wedges and mechanical separators, that I do not use the term separator in my patient's hearing, but substitute the word brace. As a matter of fact, I do often employ it as a brace only, where separation is not necessary, to hold the tooth which is being filled firmly against the next tooth so that the force of the mallet blow will be distributed among two or several teeth. With the aid of this separator, most proximal cavities may be excavated, filled and finished at the same sitting. The percentage of operations that may be so completed will depend upon the care with which the teeth of our patients are watched; in my practice I am certain that ninety per cent. would not be too high. Time is saved to both operator and patient, the method is practically painless, and soreness of teeth, so often caused by wedging methods, is avoided.

Figure 8 illustrates the universal Perry separator. It will be noticed that there are two pairs of jaws and that these jaws may be moved apart in two directions. They may be opened in the

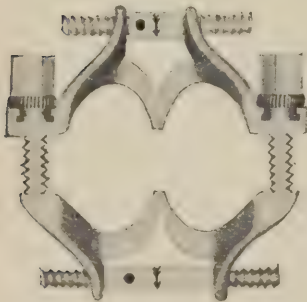


Fig 8

Figure 8.—The Perry Universal Separator. (Black).

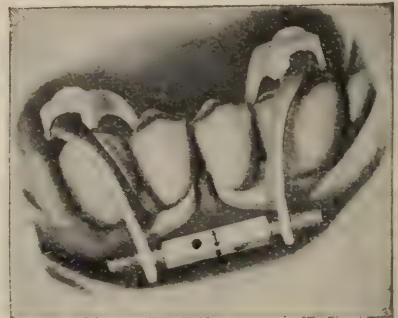


Fig. 9

Figure 9.—The Perry Universal Separator improperly applied, showing impingement of jaws on the soft tissues. (Black).

bucco-lingual direction to fit small or large teeth by turning the adjustment nuts in the bows. These adjustment bolts are not present in the other twelve separators, which have fixed bows of different curves and lengths. The jaws may be opened in the mesio-distal direction to gain the necessary separation of the teeth by turning the adjustment screws. It will be noticed that these screws have right and left threads, and an arrow on the bar indicates the direction the screw should be turned to move the jaws apart.

When this separator has been adjusted to the proper bucco-lingual width of the teeth and put in place, there is the tendency, on account of the inclinations of the proximal surfaces of the teeth

for the jaws to slip in the gingival direction and cause pain and injury to the gums, as shown in Figure 9. This gingival movement of the separator may be avoided by placing softened gutta-percha or modelling compound on the occlusal surfaces of the teeth under the bows, as shown in Figure 10. In the use of this separator, it is usually best to move the teeth very gradually by



Figure 10.—The Perry Universal Separator, properly applied, with gutta-percha between bows and occlusal surfaces of the teeth to prevent jaws from slipping gingivally. (Black).

tightening the screws a little occasionally as the cavity preparation and filling proceed. The jaws may be placed to the gingival of the gingival margin of shallow cavities, or they may be placed in contact with the enamel at the buccal and lingual angles of the tooth, but not so far to the gingival as the gingival wall of deep cavities, in both instances allowing room for the gum septum between the jaws.

In cases in which more separation is necessary than may be gained at one sitting, the separators may be used in conjunction with gutta-percha or cement for slow separation. I would generally prefer gutta-percha. The cavity should be partially prepared, so that a temporary filling will be retained. The separator should then be placed and as much separation gained as is thought advisable, by turning the screws. Gutta-percha should then be packed in the cavity and against the proximal tooth and allowed to cool, thus holding the space gained, when the separator should be removed. This may be repeated at intervals of a few days, and by this method teeth may be moved any reasonable distance without gum injury or discomfort to the patient. In packing gutta-percha into such a cavity care should be taken to protect the interproximal gum septum, sometimes by placing cement in the deeper portion of the cavity, or by the use of a metal plate extending into the interproximal space, or by both. Cement may be used for the entire filling.

In cases in which the entire crown of the tooth is lost and the teeth on either side have overlapped the root, I have a pair of extra long separating bars which are substituted for the regular ones. If, for example, the crown of the second bicuspid is lost, one pair of separator jaws may be placed against the mesial surface of the first molar, the other pair against the distal surface of

the first bicuspid, and both of these teeth moved away from the root, by the slow method, using gutta-percha or cement to hold the space gained at each application of the separator.

Following the question of separation comes that of proper restoration of tooth form and contact to maintain the width of the space and the health of the gum septum. In gold fillings, two points will be mentioned in connection with the placing of the gold. When the gold has been built up close to the point of contact, the separator should be tightened a little to give the desired convexity of the gold at this point. The gold which makes the contact point should be condensed as hard as it may be made in order to prevent the future flattening of the contact by wear resulting from the bucco-lingual movement of the teeth in mastication. It may be mentioned here that for the same reason, inlays that are cast of pure gold should have the contact point of solder, as the cast pure gold will not maintain a good contact.

The finishing of the proximal portion of a gold filling may be divided into eight distinct steps.* This is given as the standard procedure, to which there must be variations to meet conditions.

First, the separator should be tightened slightly. Second, a cut is made from the occlusal to gingival with a saw, the flat side of the blade being held against the proximal tooth. This makes the area about the point of contact smooth and gives room for the other procedures in finishing. Third, a thread saw, with blade reversed in the frame is carried to the gingival of the gingival margin of the filling and with the blade held flat against the enamel of the filled tooth, cuts are made in the occlusal direction, trimming the excess of gold from the gingival portion of the filling. Fourth, the use of Black's finishing knives to further trim the filling to form. These knives should be held with a part of the blade flat against the enamel, and the cutting from the gold should be in very thin shavings. Fifth, Black's finishing files are used to trim off the excess along the buccal and lingual margins, and to trim the filling to tooth form. Particular attention is called to the use of the convex file, held in the bucco-lingual position to give the desired concavity to the gingival half of the filling, reproducing nature's provision for mesio-distal thickness of the gum septum. Sixth, the use of disks to finish the occlusal half of the buccal and lingual portions of the filling. These should not reach the contact point. Seventh, narrow polishing strips to finish the gingival portion. These strips should be so narrow that they will not touch the contact. Eighth, the use of wide fine strips to finish the contact point. Care should be taken not to flatten the contact by the excessive use of these strips. Figure 11 shows a filling finished to proper form. A disk should never be allowed to touch the contact point, on account of the

*These steps are fully described and illustrated in Black's Operative Dentistry, Vol. II, pp. 291-298.

danger of flattening it and ruining the filling, as shown in Figure 12.

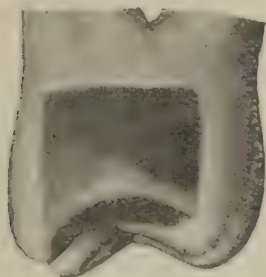


Fig. 11

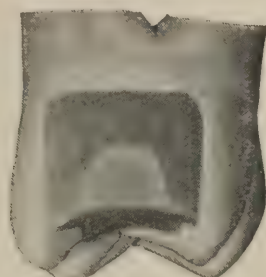


Fig. 12

Figure 11.—Proximal filling finished with normal marble-like contact. (Black).

Figure 12.—Proximal filling showing contact flattened by disk. (Black).

When a filling is finished and the separator removed the contact should be tested with silk floss. It should be tight enough so that the floss will go through with a snap. It should be so smooth that the floss will not be frayed in the slightest degree. After the floss has been passed through the ends should be held parallel in the occlusal direction to determine the bucco-lingual width of the contact. If the two ends are more than 1.5 millimeters apart, the contact is too broad. The two ends should then be held in the buccal direction to determine the occluso-lingual width of the contact in the same manner.

For gold inlays, the final form should be the same as for gold fillings. Attention has already been called to the importance of making the contact point hard, so that it will not wear flat. Attention is called to the necessity of having the gingival margin finished without an overlap, which would cause irritation and inflammation of the gum septum.

For amalgam fillings, it should not be necessary to state that separation and proper form are just as essential as for gold fillings or inlays, yet the fact that these fillings do not generally receive the same care makes this consideration of greater importance. Separation should be the same, and with our present knowledge of amalgam, no dentist is honest to his patients or his profession who puts in a proximo-occlusal amalgam filling, without having in place a matrix so securely fastened that it will withstand the heavy pressure that is absolutely necessary to make a good filling. I know of no better matrix than one cut from steel or German silver to fit the individual case, and securely tied with several wraps of strong ligature. The buccal and lingual ends should be turned inward with pliers to avoid the cutting of the ligature, and the gingival corners should be turned outward to prevent the ligature from slipping gingivally. The gingival edge of the matrix will sometimes catch a portion of the rubber between the matrix and the tooth. This difficulty may be avoided by making with a pair of pliers a very slight convexity towards the cavity in the gingival edge of the matrix. This convexity will catch on the gingival wall and may be pushed off the margin of the gingival wall by a flat burnisher placed within the cavity; the matrix

may then be pressed gingivally as far as may be necessary without catching the rubber.

After the ligature is securely tied, as shown in Figures 13

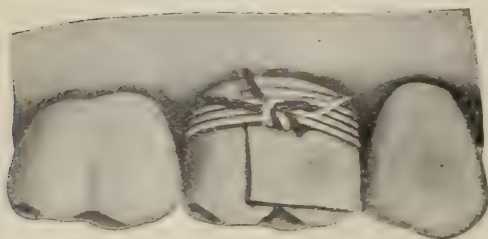


Fig 13

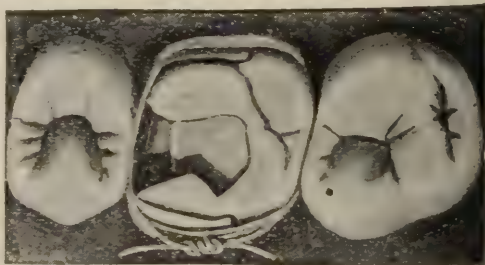


Fig. 14

Figure 13.—Matrix adjusted for proximo-occlusal amalgam filling, buccal view. (Black).

Figure 14.—Matrix adjusted for proximo-occlusal amalgam filling, occlusal view. (Black).

and 14, the separator should be placed, as shown in Figure 15. The separator not only enables us to secure sufficient space to make the filling in proper form, but assists in holding the matrix securely at the gingival margin. When a stiff matrix material is

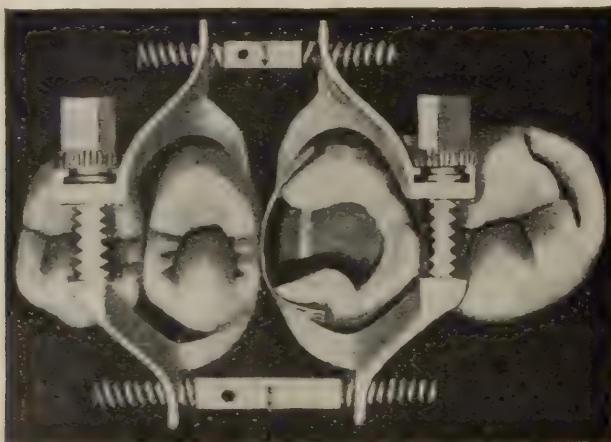


Fig 15

Figure 15.—The Perry Universal Separator applied over the matrix, proximo-occlusal filling. The gutta-percha, which should be under the bows, is not shown in this illustration. (Black).

used there is sometimes difficulty in contouring it so that it will remain against the proximal tooth at the position of the contact point. This may be easily done by using two flat amalgam pluggers, making pressure with one against the occlusal portion of the matrix on the cavity side, at the position of the contact point, and with the other at the same time on the outer side of the matrix near the occlusal margin, first on the buccal side, then on the lingual.

A high grade quick setting amalgam should be used, and it should be packed with flat end serrated pluggers, using heavy pressure. The occlusal portion may be trimmed to form while the amalgam is setting, then the separator may be removed. If we are to have a good contact the matrix should be held tightly between the filling and the proximal tooth, and considerable experience is required to determine how much force may be em-

ployed in removing the matrix without danger of fracturing the amalgam. In many cases time may be saved and all danger of injuring the filling avoided by replacing the separator for a moment with the ends of the matrix between the jaws as shown in Figure 16. A little tightening of the screws will allow the easy removal of the matrix.

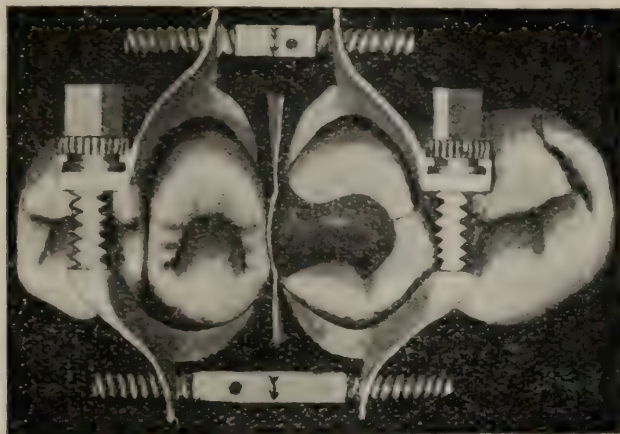


Figure 16.—The second application of the Perry Separator for the removal of the matrix. It will be noticed that the separator has been removed and the matrix straightened so that in re-applying the separator the ends of the matrix are between the jaws of the separator. (Black).

The separator should be placed to polish the amalgam filling, and the polishing should be the same as for a gold filling, disks on the buccal and lingual, narrow strips on the gingival, and a broad fine strip over the contact. We see many amalgam fillings which are nicely finished everywhere except at the most important point of all—the contact point. If this is left rough or flat, future trouble with both the proximal tooth and the gum septum may be expected and do often result directly from the dentist's neglect.

In crowns the same care should be taken to obtain proper form and contact. A good knowledge of the anatomy of the teeth is essential, not only to secure proper form, but in the preparation of roots for bands. The dentist should consider the curvature of the gingival line (line of junction of enamel and cementum) of each tooth in preparing it for crowning, and injuries to the soft

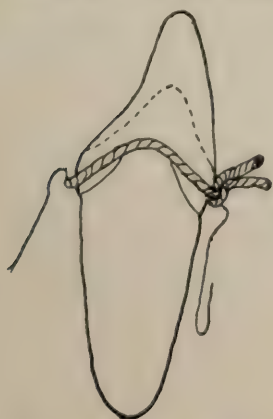


Fig. 17

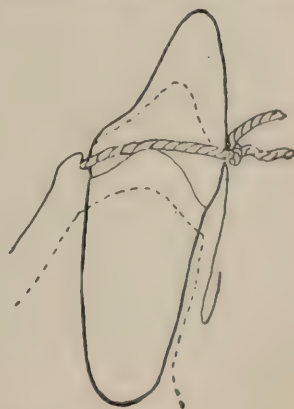


Fig. 18

Figure 17.—Ligature on incisor tooth. Attention is called to the convexity of the gingival line toward the incisal on the proximal surface. (Black).

Figure 18.—Ligature on the incisor not pushed to gingival on labial surface. (Black).

tissues should be carefully avoided. Particular attention is called to the incisal convexity of the gingival line on the proximal surfaces of incisors and cuspids, as shown in Figures 17 and 18. It is impossible to cut such a root square off and short enough on the labial, as is often done with the special instruments made for that purpose, without cutting away portions to which the periodontal membrane is attached on the mesial and distal. Whenever a root is so cut off, the gum septum on either side of it is done an irreparable injury. A similar injury is caused by crown bands that are too long and cut or cause pressure on the fibres of the periodontal membrane. Injury of less gravity is caused by bands that are too large.

Attention is also called to injuries to the periodontal membrane caused by tying ligatures too tightly about the incisor and cuspid teeth. If a ligature is carried far to the gingival on the lingual and is drawn tightly and tied far to the gingival on the labial, the periodontal membrane on the mesial and distal sides of the root may be severely injured by the ligature cutting through it, on account of the incisal convexity of the gingival line on the mesial and distal surfaces. The ligature may be tied close to the gingival on the labial, if it is not drawn too tightly, as shown in Figure 17, or may be tied as shown in Figure 18.

Results of Failures to Maintain Proper Tooth Form and Contact.

In the examination of a mouth, we should examine the gums first, and should notice particularly the condition of the interproximal tissues. The slightest deviation from the normal contour or color should lead to a careful investigation, because the early correction of some little thing may prevent the eventual loss of from one to several teeth. It is usually only when the correction is made early that it is possible to restore the gum septum to its normal condition.

Failure to restore the proper width of interproximal space and a proper contact point is, in most cases, followed sooner or later, by definite and eventually disastrous injuries. In those cases in which contact is established in improper form, there being too much of the surface of the filling or crown in contact with the proximal tooth, the embrasures are necessarily narrower than they should be and do not receive the cleaning which they should in the process of mastication; also, the broad contact invites the retention, in contact with the enamel of the proximal tooth, of micro-organisms which produce caries. The enamel is first roughened by the action of the acid, and later an actual cavity is produced. As the carious process progresses, food lodgements between the teeth occur, and the results soon become the same as in cases in which no contact had been established.

In cases in which contact is not restored, food is forced between the teeth in the process of mastication, and the gum septum is forced gingivally. The pressure on the gum of food so wedged between the teeth usually causes discomfort and frequently is

actually painful. Efforts to cleanse the space with toothpicks are accompanied by additional injuries to the soft tissues. This process continues, the gum septum being gradually forced farther and farther gingivally, while the accumulation of food becomes greater, until the entire proximal gum septum and even the bony septum of the alveolar process may be destroyed. Figure 19 is a

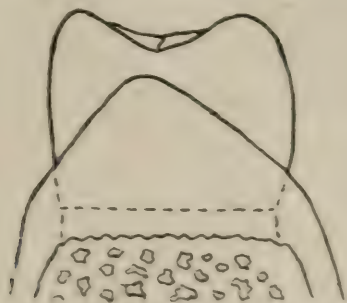


Figure 19.—Diagram illustrating the normal position of the interproximal gum septum.

Diagram of the normal gum septum, reaching occlusally to the contact point. Figures 20 and 21 illustrate the gradual destruction of the septum by food lodgements.



Fig 20



Fig 21

Figure 20.—Diagram illustrating slight injury to the interproximal gum septum by food forced between two proximal teeth.

Figure 21.—Diagram illustrating the almost total destruction of the interproximal gum septum by food forced between two proximal teeth.

The first sign of this condition observable by the dentist is usually a slight swelling and discoloration of the buccal and lingual festoons of the interproximal gum septum, as shown in Figure 22, which is a photographic reproduction of a plaster model.

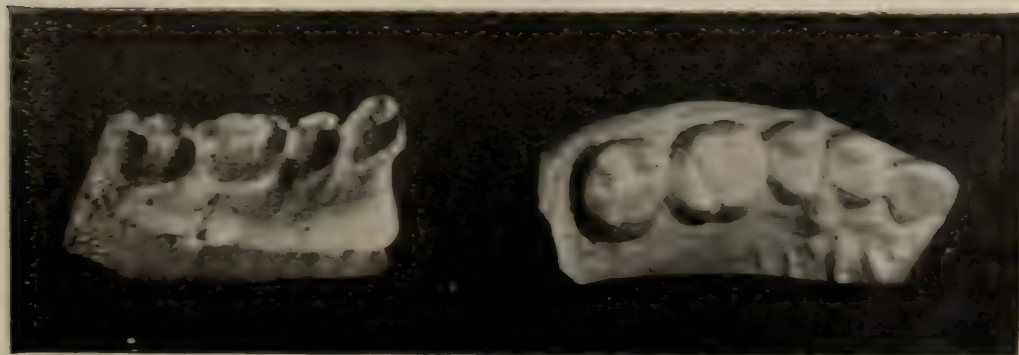


Fig. 22

Fig 23

Figure 22.—Interproximal gum septum injured by food forced between the teeth, lingual view. Photograph of cast. (MaWhinney).

Figure 23.—Occlusal view of case similar to that shown in Figure 22. Photograph of cast. (MaWhinney).

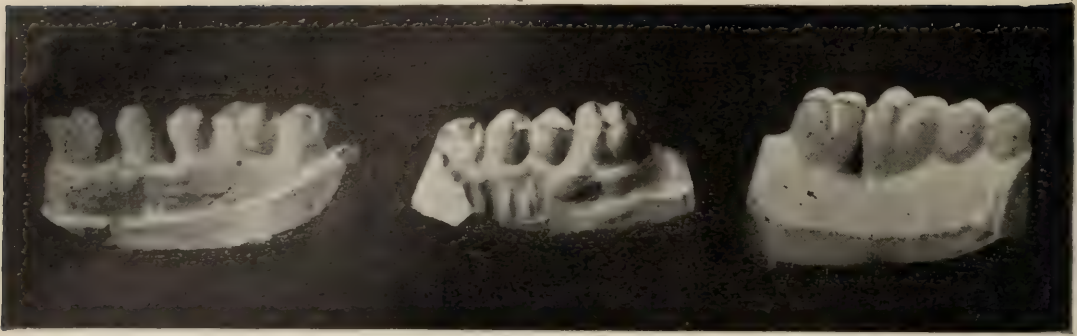


Fig. 24

Fig. 25

Fig. 26

Figure 24.—Interproximal gum septum entirely destroyed by food forced between the teeth. Photograph of cast. (MaWhinney).

Figure 25.—Lateral or gingival abscess, resulting from loss of contact. Photograph of cast. (MaWhinney).

Figure 26.—Destruction of interproximal gum septum as result of a lateral abscess. Photograph of cast. (MaWhinney).

lingual view. Figure 23 is an occlusal view of a similar case. This condition of the gum septum calls for immediate treatment, whether or not there has been any complaint by the patient. Figure 24 shows a case in which most of the gum septum has been destroyed.

The following is quoted from Black's Operative Dentistry, vol. I, p. 103: "Any condition which allows food to leak into the interproximal space, be held and forced on to the gum tissue, will cause the absorption of the gum tissue and result in the formation of a pocket. In time, one of two things is certain to happen; (1) acid fermentation will become established in the pocket and decay will occur further toward the gingival line, or (2) putrefactive decomposition will become established, and finally disease of the periodontal membrane will result."

Infections of the periodontal membrane are frequent in such cases and contiguous tissues are often destroyed. Figure 25 shows a "lateral" or "gingival" abscess resulting from such an infection, and Figure 26 reveals the destruction of tissue by such an abscess. These cases are frequently referred to in our literature as abscesses from teeth with living pulps. During the past year a case was referred to me, in which such an abscess, beginning in the periodontal membrane at the distal of an upper first molar, penetrated the bone and the floor of the maxillary sinus, causing considerable necrosis, and the loss of two teeth; all the result of a failure to restore proper contact in placing an amalgam filling.

The hopeless condition of cases in which the gum septum has been badly injured makes it imperative that greater foresight should be shown by the profession in recognizing these cases in the early stages and in instituting proper treatment while there is the possibility of restoring the gum septum to its normal condition. When this tissue is once destroyed the treatment must be unsatisfactory to both dentist and patient. Gingival decays constantly recur, and the condition of the periodontal membrane becomes gradually worse. There is also the unsanitary condition

of the mouth and bad breath, on account of the decomposition of food lodged between the teeth.

The best treatment that I can suggest in such cases is the following: First, the dentist should establish the proper form of contact to prevent food from being forced between the teeth in mastication; this will prevent pressure on the interproximal soft tissue, but it will not prevent food particles from passing into the septal space from the buccal and lingual. Second, the patient should be impressed with the gravity of the case and instructed how to cleanse the space with silk floss or rubber bands after each meal. I advise against the use of toothpicks, on account of the danger of further gum injury by them. I often give a patient a rubber bulb syringe, with nozzle bent to fit the case, and instruct him to cleanse the space by forcing water through it from buccal to lingual. Third, constant watchfulness on the part of the dentist, to keep the surfaces of the teeth as smooth as possible, both as regards deposits and caries.

There are four other conditions which result in the same injuries as do failures to restore proper contact, as follows: (1) Proximal surfaces roughened by caries; there may or may not be an actual cavity. (2) Teeth slightly apart, there being no decay. Such cases occur most often as the result of the loss of neighboring teeth. (3) Teeth which are in proper contact, but move apart sufficiently under the stress of mastication to permit particles of food to become wedged between them. This condition occurs most often when one of the teeth has no next neighbor in the line of the arch, as for example, a third molar may move distally under pressure and open the space between it and the second molar. (4) Interproximal wear of the teeth as a result of bucco-lingual movement of the teeth in mastication. This wear is accompanied by the flattening of the contact, which allows food to be forced between the teeth, the same as though a filling had been finished with a flat contact, or finished flat without any contact.

All of these conditions call for proper contact restorations for the same reasons as have been mentioned. If there is a slight roughening by caries, whether there is an actual cavity or not, a filling should be made. If the teeth are slightly apart and there is no decay, a cavity should be cut in a sound tooth and a filling made. A dentist can render no service of greater value to his patient than such an operation. Teeth slightly apart should not be confused with those sufficiently apart in the arch so that food lodgment does not occur. Fillings are not indicated in the latter class of cases. Teeth which move apart under the stress of mastication, should be held apart with the separator while a filling is made that will insure a tight contact. Such cases are frequently not permanently successful, as the condition may recur as a result of the continued movement of one tooth. A little grinding of occlusal surfaces may so change the occlusion as to improve the condition, or prevent a recurrence. The treatment of interproximal wear is to place fillings which will restore normal contour

and contact. Figure 27 illustrates a case of interproximal wear. The facet is well shown on the enamel, while the decay in the root



Figure 27.--Flat contact resulting from interproximal wear, showing evidence of the destruction of the interproximal gum septum, also decay which occurred as a result of the destruction of the interproximal gum septum. (Black).

tells of the destruction of the gum septum and the food accumulation there.

Severe and irreparable injuries to the interproximal septi are often caused by the use of a toothpick, particularly the wooden toothpick, and silk floss. Patients should be instructed in the use of the toothpick, should be told not to pass a wooden toothpick through the septal space, thus pressing the gum septum gingivally and causing its eventual recession. They should be shown how to pass a ligature or rubber band through the contact without allowing it to snap against the gum septum. The ligature should be held diagonal to the long axis of the tooth and with the fingers holding it close to the teeth, it should be passed by the contact in the bucco-lingual direction, rather than in the occluso-lingual direction.

In closing, let me repeat that we should be more careful in our examinations, in order that we may discover at the earliest possible moment, the first sign of impending injury. We should use greater care in every little detail in our operations, to the end that our daily work shall approach more nearly the ideal of preventive dentistry.

Discussion.

Dr. A. E. Webster said the Society had chosen wisely when it decided to ask Dr. Black to address them, and that Dr. Black had chosen wisely when he took the subject of the Preservation of the Interproximal Gum Tissue. The Society rarely hears a full discussion of the minute details of operations. The speaker was rather unfortunate in choosing the cut or slide he did to illustrate the contact point as the coming together of two spheres, because the contacts between the first and second molars had a wide contact bucco-lingually, as is usually the case with these teeth. The disto-lin-

gual cusp of the upper first molar is usually so prominent that the distal surface is often concave bucco-lingually rather than convex and the mesial prominence of the second molar drops into the concavity, thus widening the contact often to two-thirds of the tooth bucco-lingually. The contacts in the anterior teeth may be likened to the coming together of two spheres, but this rarely holds good between the upper molars. In cases where the mesio-lingual angle of a molar is lost and the teeth have come together, the lingual embrasure may be widened mesio-distally to make a smaller contact bucco-lingually, but care must be taken that the contact is not carried so far to the buccal so food will crowd upon the gum through the wide embrasure. The Perry separator is very satisfactory in small cavities, but where the cavities are large they are in the way. The speaker rather decried slow separation because of the loss of time and the soreness of the teeth. It is said to avoid soreness of the teeth that the slow method is used. Immediate separation is fraught with many dangers. To gain space by separating the teeth with the metal separator and then packing with gutta percha is not as satisfactory as packing the cavity with cotton or cement because the gutta percha does not become hard even though it is cool and as soon as the separator is removed the teeth close together again, which would not occur if cotton or cement were used. The long bars of the Perry separator so that space may be made for a crown between, say, a second bicuspid and a cuspid, is a splendid suggestion. The more modern gold files for finishing gold fillings have been greatly improved. They used to be made too thick and clumsy. All the knives which he had seen were not satisfactory for trimming any kind of proximal filling in the posterior teeth. The speaker forgot to mention that the narrow strips may be tapered at the ends so that they can be started in between the teeth far enough to be grasped on the opposite side with a pair of pliers and drawn through.

Generally speaking, the Ivory and Heniker circular matrix is used for amalgam, but unfortunately the bands used at the present time are not rigid enough to bear sufficient pressure to condense the amalgam. If individual matrices are used, as the speaker described, there is much difficulty in getting it out because the little kink given that part at the gingival will catch the filling and dislodge it. A matrix may be molded to form with the contouring pliers and wedged to place at the gingival with cotton or a wooden wedger. It was found at the J. E. Wilkinson Manufacturing Company that amalgam packed into the tubes with round-faced pluggers there was less leakage than where square-ended pluggers were used. The speaker recommended square-ended instruments. Dr. Webster wanted to know how former mentioned facts could be explained.

Dr. A. A. Stewart pointed out the exceedingly bad practice of filling proximal cavities with cement in the hope of preserving the pulp. It would be, in the mind of the speaker, better to lose the pulp and preserve the interproximal space than save the pulp

and lose the space. Dr. Stewart discussed the use of the matrix in filling proximal cavities with gold. He also criticised the use of knives, as advocated by Dr. Black. In his opinion the cutting should be made towards the margin and not away from it.

Dr. C. H. Waldron suggested the use of a thin-bladed lancet between the filling and the proximal tooth, passing the lancet from the gingival upwards, thus burnishing the contact. He also suggested thin sheets of nickel silver highly polished for individual matrices, punching holes in them so they might be used in the Ivory matrix holder.

Dr. W. H. Doherty called attention to the necessity of perfect cleanliness of the mouth, and illustrated from dental anatomy nature's methods for accomplishing it. The contact points are located at or near the occlusal surface to keep food from impinging upon the gum. They are so small that stringy food will not be retained, and towards the buccal rather than in the centre of the teeth, because the tongue is much more active in removing particles of food from the cheeks. The buccal side thus being more protection against lodgment. He also said that the essayist's expression triangular space, used in his definitions, was hardly correct, because one might speak of a surface being triangular but not a space.

Dr. Semans, Sterling College, Columbus, Ohio., complimented the essayist for his simple and direct method of presentation. He believed immediate separation to be the most satisfactory and least painful. If a Perry separator is slowly tightened at first and tightened a little from time to time during the operation there would be no pain or accident. The individual matrix tied to place was, in his opinion, most satisfactory. The metal for this purpose must be hard, rigid, thin and capable of high polish.

Dr. A. J. McDonagh rose to express his personal thanks to Dr. Black for bringing to the attention of the profession a subject which had much to do with the cause of diseases of the tissues about the teeth.

Dr. Muir, of Detroit, was introduced as a specialist in prophylaxis, but said he was interested in the subject of the evening rather for its bearing on operating procedures in filling teeth.

Dr. H. E. Friesell, Dean of the Dental Department of Pittsburgh University, said there were many things in dentistry we knew little about, but there were also many of which we do know, and the father of the speaker of the evening had done much to reduce what we do know to an exact science. It had been shown that clean surfaces do not decay and that decay begins on the outside of the tooth, not under healthy gum, and that the practice of extension for prevention is well founded. These are axioms, and if you do not understand them or carry out your practice having these in view, take heed of the illustrations here to-night by Dr. Black. The foundation of operative dentistry is a thorough knowledge of dental anatomy. He also said that if gold were sufficiently condensed it made little difference if the knives for trimming were drawn from the margins toward the centre.

Dr. Arthur D. Black. (Closing the discussion.) So many little points have been mentioned in the discussion that I cannot, for want of time, refer to all of them. Dr. Webster called attention to the picture showing broad contacts in the bucco-lingual direction between the molars. While the conditions mentioned by him often exist, yet it is more often that the proximal surfaces of these teeth are less convex than the others, resulting in embrasures that are narrower than normal, rather than a broadening of the actual contact. The question of the advisability of using immediate or slow separation must be decided by the conditions that are present in the individual case. In those cases in which it is only necessary to have sufficient separation to allow for trimming and polishing the filling, and in cases in which there has been only a very slight dropping together of the teeth, there can be no possible danger in the use of immediate separation, provided the operator is careful not to obtain more separation than is needed. It should always be remembered that the mechanical separators are very powerful instruments, and serious and permanent injuries may result from carelessness.

To my mind the large cavities are the ones for which the Perry Separator is especially valuable, for the reason that the jaws may be placed either far to the gingival or far to the buccal and lingual as may be desired. In using gutta-percha in connection with the mechanical separator for slow separation, much depends on how hot the gutta-percha is heated. It should be gradually warmed until it is just sufficiently pliable to work well; it will then cool and become hard quickly. If it is heated too much, it will harden very slowly. My principal reason for preferring gutta-percha to cement is that it may be removed with less discomfort to the patient, not requiring the use of the engine.

In the removal of the matrix which has been kinked at the gingival, it should be withdrawn diagonally, rather than in the occlusal or buccal direction.

To answer Dr. Webster's question about the amalgam pluggers, I would like to know how convex the pluggers mentioned are; if they are slightly convex, I think it would make little difference, if much convex so that they would tend to enter the mass of amalgam, they will not give the best result. The point I wish to emphasize is that amalgam must be packed with heavy direct pressure, if good adaptation is to be secured.

I am very glad that Dr. Stewart mentioned the cement fillings. I know of no more damnable practice than the use of cement for proximal fillings, and it always makes me sick to see the mouth of a patient for whom a number of fillings have been made. The washing away of the cement gradually opens the contacts, the gum septa become inflamed and bleed easily, the periodontal membranes become sore, the patient cannot chew with any comfort, nor can the teeth be properly brushed; everything is favorable for the progress of caries of the teeth and disease of the soft tissues.

I would most emphatically disagree with the suggestion of a matrix for proximal gold fillings for the reason that it is impossible to get proper adaptation of the gold to the cavity walls; because the matrix does not permit one to hold the plugger in proper position to condense gold against the walls.

Referring to the direction of motion of the files and knives in trimming, will say that I never hesitate to cut the gold in a direction away from the enamel margin, if the gold is properly condensed, yet I agree that as a general proposition the other direction is the better.

Dr. Waldron spoke of burnishing the gold at the contact point to make it harder. I would rather mallet it hard enough when I put it there. He also spoke of the Ivory matrix. I use this matrix for proximal cavities when there is no proximal tooth, as for a disto-occlusal cavity in a second molar, the third molar having been extracted. My objection to this matrix in the ordinary case, is the difficulty or impossibility of placing a separator at the same time.

Dr. Doherty spoke of oral prophylaxis. I would like to emphasize the point that my entire paper was on oral prophylaxis, in its broadest meaning. Dr. Doherty called attention to the definition of the interproximal space as given in the report of the committee appointed by the Institute of Dental Pedagogics, which you must agree is incorrect. A section through the space may be more or less triangular or V-shaped, but the space itself could not be. I do not see how we can get away from the definition that the interproximal space is the space between two proximal teeth, and the error is in the terms used to describe the shape of the space.

In conclusion, let me assure you of the good time we have had during our stay in Toronto, and of the pleasure it has been to meet so many Toronto dentists, and to have the opportunity of discussing this subject with you this evening.

ELECTRICITY IN DENTISTRY.

By J. W. Leighton, Graduate of School of Practical Science,
Toronto, Can.

INTRODUCTION.

Electricity has been the chief factor within the last decade for the great scientific advancement of the present day. Think of the telegraph, the telephone, the world-wide power, lighting and transportation developments, the many domestic conveniences and comforts made possible only through the discovery and use of electricity.

Nor has electricity fallen short in its application to dentistry.

The dentist of to-day, surrounded by the many electrical contrivances, is far superior and capable to the man of yesterday. Relieved, by their use, of the heavy work, he is enabled to perform his operations with a degree of skill, accuracy and comfort, fitting him for the all-important task of dealing with his patients in a bright and jovial way, and not as an overworked man.

This marked advancement through the use of electricity means that the majority of dentists use electrical apparatus; and, in order to obtain the best results, it is necessary to understand the fundamental principles governing their use.

In obtaining current for his office equipment the average dentist relies upon the advice of the local electrician, and in purchasing electrical apparatus, upon the dental dealer, the sale being in some cases to the advantage of the dealer rather than to the dentist. It is essential, then, that every dentist should be acquainted with the construction as well as the use of these appliances. There is, therefore, a demand on the part of a large portion of the dental profession for concise and reliable information respecting electricity and electrical apparatus.

Many text-books can be obtained upon electricity, but the subject is broad and nearly all works of any importance being written in technical terms, and mathematical proofs are difficult and laborious for the average person, who seeks the information as a pastime.

It is the intention of the writer to describe in a series of articles the generation and transmission of electricity, and the simple laws that govern it. The relationship between magnetism and electricity, and between electricity and heat, and the practical application of each to electric dental instruments, and a scientific discussion of their uses and construction. The subject of Electro-Therapeutics or the application of electricity for the restoration of the body to health from a diseased condition, will not receive consideration. Stress will be given to the practical rather than the theoretical. The subject will be made as simple as possible and treated from the elementary standpoint entirely.

Long before electricity became of commercial value, the term was used by scientists to designate the phenomena that occurred when substances were rubbed together, and charges of electricity were produced. Many theories have been advanced, but we are still ignorant of the precise nature of electricity. Our knowledge, however, of its manifestations are well understood and the laws that govern it are well defined.

The great importance to mankind lies in the fact that by its means, energy spent in one part of a system can be made to re-appear as heat, light or work at some other part of the system. As for example, coal is burned to produce steam for the steam engine. The mechanical energy or power from the steam engine is transformed by means of the dynamo to electrical power which is transmitted instantaneously by conducting wires, even to great

distances, to be again transformed to light, heat, or mechanical power.

The early scientists found that electricity could be produced by friction, heat, chemical action, and by magnetism. The first two are of very little practical value. Chemical action, to produce electricity, is becoming of less and less importance, while the method of converting mechanical energy to electrical, by means of magnetism, is of the utmost commerciality. Inventors are, at the present time, directing their efforts to produce electricity direct from coal by chemical action to obviate the great losses in the boiler, the engine and the dynamo, but as yet without success. It is the opinion of the writer, however, that a commercial method may be found whereby electricity may be produced direct from heat.

CHAP. I.—Elementary Principles.

Electricity is a broad term and is the name given to that branch of science which deals with electric phenomena and theories which covers its manifestations when standing still as static charges, or when flowing as currents.

If a piece of glass is rubbed with a piece of flannel, it will acquire the power to attract pieces of paper. This force was known to early scientists as electricity and they found that it could either reside upon the surface of a body or flow through it as a current.

Current.—Residual electricity is commonly known as static electricity, and is of very little commercial value, except perhaps, in the case of condensers and influence machines, used to obtain high voltages. The charge upon the surface of the body will suddenly disappear if the body is connected to the ground by a wire, exhibiting a spark at the point of contact. If electricity could be supplied to the body as fast as it flows away, a continuous current would be produced. Such a current always flows through a conducting wire if the ends are kept at different potentials. There are two kinds of current, direct and alternating. Direct if they flow, without stopping, in one direction, and alternating if they continually reverse in direction in regular periodic manner, flowing first in one direction around the circuit, and then in the other. Direct current is commercially produced by chemical batteries, or by dynamos driven by mechanical power. Alternating current is produced by dynamos differently constructed from direct current machines. A more minute description will be given in subsequent chapters.

The current or flow of electricity is the factor that does the work just as the flow of water does in driving a water-wheel. The unit is called the ampere, the standard is determined from the quantity of metal deposited in a given time.

Electromotive-Force.—As mentioned in the preceding paragraph, a current of electricity will flow through a wire if the ends are kept at different potentials. Just as in water pipes a differ-

ence of level (or potential) produces a pressure, and the pressure produces a flow so soon as the tap is turned on, so difference of potential produces electromotive-force, and electromotive-force sets up a current so soon as a circuit is completed for a current to flow through. Electromotive-force is the term given to that which moves or tends to move electricity from one place to another, and is the result of difference of potential. It is sometimes spoken of directly as the difference of potential. The unit in which electromotive-force is measured is termed the Volt. The terms "voltage" and "pressure" are sometimes used for difference of potential or electromotive-force.

Resistance.—Electromotive forces or voltages vary, or can be made to vary, and as a result different amounts of current flow. The same voltage does not, however, always produce the same strength of current. The amount of current depends not only on the force tending to drive the electricity round the circuit, but also on the resistance which it encounters. Resistance is the name given to that property of materials by virtue of which they obstruct the flow of electricity through them. The unit of resistance, or Ohm, is a standard chosen in order that the resistances of conductors may be expressed in definite numbers, just as the foot or inch are units of measurement. The standard is the resistance offered by a uniform column of mercury 106.3 centimeters long, and 14.4521 grammes in mass at 0° centigrade.

Resistance in a circuit may be of two kinds: the resistance of conductors (metals, alloys, etc.), and the resistance due to imperfect contacts or through poor conductors. When the surfaces of two conductors are brought into more intimate contact with one another, the current passes more freely from one conductor to another, and this point is of practical value to a dentist in that loose connections mean weak current and trouble.

Laws of Resistance.—The resistance of a conducting wire is proportional to its length, the longer the wire the greater the resistance.

The resistance of a wire depends upon its cross section or diameter, the smaller the diameter the higher the resistance.

The resistance of a conducting wire of given length and thickness depends upon the material from which it is made.

The specific resistance of a substance is the resistance of a centimeter cube of the substance. The specific resistances of the more common metals are as follows: Copper, 1.57; silver, 1.49; gold, 2.07; aluminum, 2.8; iron, 9.6; German silver, 20.76.

Insulators.—The name insulator is given to materials which have such high resistances that they can be used as non-conductors. The common forms of insulators, such as mica, porcelain, rubber, wood fibre, gutta-percha, lavite, shellac, magnesia, most paints, cotton, are familiar to every dentist.

Ohm's Law.—Dr. Ohm discovered that certain fixed relations existed between the voltage, the current and the resistance. This law is most useful in understanding the electrical circuit.

The law may be stated as follows:—The strength of the current increases with the voltage and decreases with the increase of resistance, or, the number of amperes of current flowing through a circuit is equal to the number of volts divided by the number of ohms.

$$\begin{aligned}\text{Amperes} &= \text{volts} \div \text{ohms}, \\ \text{or Volts} &= \text{amperes} \times \text{ohms}.\end{aligned}$$

This relationship is very important and explains clearly the problem that every power company has to consider in transmitting power to distances. The loss in voltage or the "line drop," as it is commonly called, represents the amount of voltage that has to be deducted from that generated by the dynamo to ascertain the exact voltage at the point of consumption. This drop is determined from the above equation and is equal to the resistance of the wire multiplied by the current passing through it. In the case of the wiring in a city or town, the amount of wire remains the same, that is, the resistance remains the same, and also the voltage at the dynamo; but the current, due to a varying number of lights or motors on the circuit, is constantly changing, and thereby the line drop is made to vary which in turn affects the voltage at the point of consumption, explaining why dental engines run faster and lights burn brighter at certain times of the day. Direct current systems are affected by line drop to a greater extent than alternating current systems, which will be explained in the next issue.

Watts.—The power of an electric circuit to perform useful work, whether in lighting, heating, or performing mechanical actions, is proportional to the strength of the current and to the voltage. Hence, the power given to the circuit is equal to the current multiplied by the voltage. The electric unit of power will then be 1 ampere driven by an electric pressure of 1 volt. This unit is known as a volt-ampere, or 1 Watt.

A thousand watts is called a kilowatt, and a horse-power is equal to 746 watts.

To find the number of watts of power consumed, multiply the number of volts by the number of amperes, and to find the horse-power, divide by 746. An ordinary 16 candle-power incandescent lamp takes, roughly, one-half of an ampere, and therefore on 110 volt circuit, uses 55 watts, or roughly, one eighteenth of a kilowatt. The power companies charge for kilowatt hours, the unit being a kilowatt hour, meaning the consumption of a kilowatt of power for a period of one hour. The resistance of a 16 C.P. lamp from Ohm's law would be 110 divided by $\frac{1}{2}$, which equals 220 ohms.

Laws of Development of Heat.—The consumption of electrical power is either through heat, light, chemical action or mechanical power. In every case where a current does work, that work is done by the expenditure of part of the energy of the current. A current passing through a wire produces heat. The number of units of heat developed in a wire is proportional:

1. To its resistance, or to the number of ohms.
2. To the square of the strength of the current or, in other words, the amperes multiplied by the amperes.
3. To the time that the current lasts.

The heat required to raise one gramme of water through 1° centigrade, is equal to the square of the current, multiplied by the ohms, multiplied by the time, multiplied by .24.

The current of one ampere flowing through a resistance of one ohm, will raise therein .24 grams of water through 1° centigrade. So that it is a simple arithmetical problem to determine, for instance, the resistance required when placed on a 110 volt circuit, to generate sufficient heat to raise a given quantity of water to a certain temperature.

Summary.—The most important features to remember in the preceding paragraphs are, the exact relationship between pressure (volts), current (amperes), and resistance (ohms). How the voltage is always present, and the current only when the circuit is closed. How the flowing of current in a conductor effects the voltage.

In the next article the generation and transmission of electricity will be dealt with, using Niagara Power as an illustration.

WHAT IS PREVENTIVE DENTISTRY.

By A. E. Webster, M.D., D.D.S., L.D.S., Toronto, Can.

Read before the Royal Dental Society, Toronto, Nov. 19, 1909.

The definition of Medicine given by the encyclopedic dictionary is "A science and art directed first to the prevention of diseases and secondly to their cure." Then in the broadest sense the object of medicine is to prevent disease; its cure is of secondary consideration. Among the ancients all kinds of charms and the wearing of amulets were used to prevent disease. For centuries the medical profession seemed to have lost the idea that their function was to prevent disease as well as to cure it. Physicians did not study sanitation, housing of the people, or the propagation of the human species, they contented themselves with treating diseases when they occurred. Thus they lived by the follies and misfortunes of others. Even to-day it is not uncommon to hear physicians say that this or that person knows too much. "He thinks he knows all about sanitation, etc." Physicians as a class, even of to-day, do not believe in dissemination of knowledge about diseases and their prevention. Physicians wish to give the impression that they possess great learning of a mysterious kind, in fact an occultism which has been handed down to them alone, a kind of secret society ritual.

Physicians have always been so conservative that the scien-

tists in their calling and outside of it have had difficulty in trailing them out of empiricism and superstition. They seemed to fear that the public might know too much.

Within quite recent years the physician has begun to study the prevention of diseases, in fact giving fully as much time to the prevention of diseases as to their cure. Special courses are given in sanitation, social economy, sexual relations and contagious diseases. Not long since many medical departments thought they had hit on a new idea and established special chairs in "Preventive Medicine." This did not take very well with the more thoughtful, because it was an admission that the profession had up to that time only dealt with the cure of disease, while as a matter of fact the real function of the early physician was to prevent disease. Thus the broader definition as set forth in the first paragraph has prevailed, and we hear little of the specialty of "Preventive Medicine" to-day; every physician practices more prevention in his daily rounds than he does cure. In truth, much of modern surgery has for its object prevention as well as, or rather than, cure.

The history of modern dentistry has been somewhat that of medicine. At first relief of pain or prevention of pain was sought in charms, etc., while later, paining members were removed and artificial substitutes made. From early times to within a hundred years, little was done to prevent diseases of the teeth, while much was done in the way of substitutions. Making of artificial substitutes can hardly be looked upon as preventive dentistry while all other operations in dentistry which have for their object the prevention of decay of the teeth or their loss, may be classified as Preventive Dentistry. Thus the very foundation of operative dentistry or filling of cavities of decay in human teeth is preventive dentistry. Every effort which has been made to prevent decay of the teeth by disinfectants, and by diet, has been preventive dentistry. All the modern methods of internal medication and prophylaxis which have for their object the prevention of decay and loss of teeth is preventive dentistry. It is plain then that all operative dentistry is preventive dentistry, and by no means can the term be properly applied to operations of prophylaxis alone. The history of the rise and fall of preventive dentistry will be the same as that of preventive medicine.

Preventive dentistry can be properly divided into prevention of decay and its consequences, and the prevention of diseases of the peridental membrane, and perhaps a third, prevention of general diseases.

The prevention of each may be local and general. In neither decay nor peridental affections has much progress been made in general treatment. At times much hope is held out from dietetics and proper regime of life. All such attempts at treatment have failed more or less because people will not change their mode of living even to preserve every tooth they possess. If it could be shown without peradventure that decay of the teeth or

diseases of the peridental membrane were an indication of general disease and that certain general dissolution was near at hand, then there would be much hope for the dietetic treatment of dental caries and diseases of the peridental membrane. When this cannot be shown, little will be done. There is no gainsaying the point that the proper mastication of hard foods keeps the surfaces of the teeth clean and prevents decay, while the ingestion of only such foods as are easily eliminated, and that do not tend to cause deposits of calcific matter are less likely to cause pyorrhea.

Internal medication for the prevention of diseases of the peridental membrane has been fruitless of results. Every known anti-rheumatic treatment has been tried for pyorrhea without any positive results. Such treatment was based upon the theory that those diseases which are due to a lack of elimination of the waste products of the body, but since little is known about the cause, little can be expected from internal medication.

At present the only prevention of troubles of the peridental membrane is local, which consists in the prevention and removal of all sources of local irritation. Rough edges of teeth are smoothed, all fillings are perfectly smoothed, and food is prevented from jamming upon the interproximal gum. Crowns, bridges, dentures and orthodontia bands and appliances are so adjusted that there can be no point of irritation to the soft tissues about the necks of the teeth. It is believed that perfectly smooth surfaces of the teeth have more to do with the prevention of pyorrhea than diet or modes of living. Calcific deposits occur only on those surfaces of the teeth which are not rubbed and kept smooth.

The prevention of decay of the teeth by internal medication has received a decided stimulus by the work of Dr. Low, of Buffalo. It was suggested by Michaels that in those mouths where there was an abundance of sulpho cynate of potassium and an acid reaction of the saliva and low in ammonia, decay did not occur. Dr. Low went further and tested hundreds of mouths for sulpho cynate of potassium and found that decay was in proportion to the lack of sulpho cynate reaction. He also found that by the administration of tablets of sulpho cynate, now made by Parke Davis, the amount secreted in the saliva could be increased and the prevention of decay thus brought about. It was suspected that the presence of sulpho cynate prevented the formation of the gelatinous plaque of Williams & Black. Laboratory experiments were recently undertaken by Waugh & Low to settle this point. Gelatinous plaques were grown in lamb's broth which was inoculated from carious teeth. In those tubes in which a solution of potassium sulpho cynate was placed there was a restraining influence on the growth of the plaque. In fact, none grew in certain strengths of solutions. In no case was the strength of the solution even equal to that which often occurs in the mouth. From these experiments and clinical observation it may be confidently expected that the gelatinous plaque can be prevented from forming by the administration of potassium sulpho cynate. To go fur-

ther back and show why there should be an absence of sulpho cynate of potassium in some mouths and present in others is the need of the hour. It is quite possible that prevention of dental caries may be undertaken a step farther back than the administration of sulpho cynate of potassium.

It has been abundantly shown that no amount of disinfectants applied to the teeth and mouth can have any influence in the prevention of dental caries. The micro organism which secretes the acid which dissolves away the tooth structure is too well protected beneath the plaque to be influenced by drugs the strength they may be used in the mouth. Then the rational preventive measure is to prevent the formation of the dental plaque. This Dr. Low proposes to do by the administration of sulpho cynate of potassium.

Local measures for preventing the decay of the teeth have been in use for centuries. In the seventh and eighth centuries the Arabians used cements, gum mastic and alum for filling cavities in teeth to prevent decay. To prevent decay beginning, the teeth were to be rubbed with powder of gall-nuts and pepper. Many other nations had similar means of preventing the progress with greater success. Local prophylactic measures have always had more adherents than any general treatment. Since the discovery of the absolute cause of decay of the teeth by Miller, and its further elaboration by Williams and Black and Tomes, much progress has been made in preventing decay. They have shown that decay penetrates beyond the point of local softening and must be removed to prevent recurrence. It has been known for centuries that if all the decay be removed from the cavity in a tooth and the hole plugged in a way that moisture does not again get entrance, decay does not re-occur. It has often been noted clinically that a cavity partially cleared out will show much deeper penetration and softening of dentine even in a few days after, as if the decay had been stimulated by removing the superficial carious portion. It has also been observed that fillings which do not wholly exclude moisture seem to prevent or retard the progress of decay. The progress of decay seems to be the most easily prevented infectious attack met within the human body. It is true that disinfectants seem to have little or no influence upon the progress of decay either on the surface of the tooth or in the depths of the cavity, while almost any kind of a protecting filling will retard decay.

It was later observed that decay usually began in defects in the surfaces of teeth or on those surfaces which were not kept clean either by excursions of food in mastication or by the tooth brush. Upon this latter observation and also the biological history of the formation of the plaque, Dr. Black based the practise of always extending the walls of cavities of decay until they reached the area or location on the tooth's surface which is always kept clean. This method of practice is known as "Extension for

Prevention." Thus we have had for years a means of preventing decay of the teeth applied to surfaces not yet attacked.

This step in advance was some years later followed by a decided advance step by Dr. D. D. Smith, who advocated rubbing the gelatinous plaques from all surfaces of the teeth, thus supplementing what nature does by mastication. He has been able by his methods to prevent the beginning of dental caries on all surfaces except in defects such as pits and fissures. This method of practice is known as prophylaxis and is destined to be one of the greatest steps in preventive dentistry yet taken.

The method of thus preventing caries is of a two-fold character. That which the dentist does and that which the patient does in the interval between visits. The dentist undertakes to go over every surface of the teeth with an abrasive on a wooden stick, rubbing the surface of the teeth until all accumulations and concretions are removed. This is done by hand, so the operator may know by the sense of touch when the enamel is reached. The abrasive used is a very finely ground pumice stone, flour of pumice. The proximal surfaces are reached by passing silk tape impregnated with pumice back and forth between the teeth. After all the teeth have been so treated large quantities of tepid water are flushed about the teeth to wash away the pumice and also induce the mucous cells to disgorge what may have been taken up.

The instruction to the patient is to return for treatment once a month or once a year, according to the necessities of the case. The patient is expected to brush his teeth at least three times a day. At one of these brushings it is recommended that silk tape be passed between the teeth and carried back and forth to prevent the plaque from forming and to prevent calculus from becoming attacked. The use of the tape is fraught with much risk and must be done with care, else more harm will be done to the gums than any good that might come from its use. At least five minutes should be spent at each brushing.

Those surfaces of the teeth where plaques have formed and superficial disintegration has occurred, may be polished, and nitrate of silver applied. This blackens the surface and cannot be used on labial surfaces, but where it is indicated decay is prevented. Full strength formaldehyde may be similarly used on exposed or labial surfaces.

While all these methods of prevention are directed against the loss of the teeth there is also a large field of general health influenced by the condition of the teeth and gums. It is becoming more and more understood that the condition of the teeth and mouth has a great influence on the general health. Then preventive dentistry must be looked upon in a much broader sense than the mere prevention of dental caries in all its aspects and the prevention of pyorrhea. The field of preventing general diseases by local treatment of the mouth, though there be neither decay nor pyorrhea, is a large one, and may be classed as preventive den-

tistry. An essay on this latter subject would be of much interest at this time.

To sum up, preventive dentistry covers the whole field of operative dentistry and can in no sense be applied to any one department alone. All other preparations have for their purpose the prevention of further destruction and disease. As in medicine, there is an immense field of activity opened up, and the sooner we grasp the point and carry on our work with the idea of prevention in view the sooner we will be deserving of the gratitude of the people. To do one's work with the idea that it will prevent further decay or loss, and not only restore to health parts which have been diseased but also prevent diseases which can only be foreseen by the trained physician or dentist, is the work of a professional man. Let us awaken and widen our point of view.

THE GOLD TOOTH.

By Alexander Pottles, M.A., M.D., D.D.S.

We have still among us men who are satisfied to deface personal appearance by setting "all gold" crowns upon conspicuous teeth.

Persons of primitive taste like to display anything that looks like money. The shoddy dentist can cater to this taste without any shock to his own.

Gold crowns, gold-ended bridges, and rows of white little store teeth are now made by a servant of the dentist, called the "mechanical man," whose cheap labor enables dentists who use him to sell crude mouth jewelry at a price satisfactory to the bargain hunter.

What if diseased tooth-roots, mutilated gum and other conditions sure to result in disease, are covered by crowns and bridges without surgical treatment? What if health of gum and neighboring teeth is sure of damage from these crude, mechanical appliances? Well, the patient does not understand these matters, and the bargain dentist is not paid even for the little surgical or artistic skill he has. According to his own presentation of the case he is paid for precious metals and teeth at so much per crown, tooth, or filling. The insertion of these is understood to be "thrown in."

Why, in city, town or village do we see so many hideous rows of store teeth, bearing little resemblance to natural teeth, less harmony with color or contour of faces, and no redeeming feature in the way of health or usefulness?

Wearers of these monstrosities were guided in their choice of a dentist by the prices at which he sold teeth. They thought they were buying goods, and so indeed they were. Goods was all they

got—except occasionally some disease transmitted by unclean apparatus.

People of this class have not learned that skilful or proper service in dentistry depends upon the personal ability and thorough education of the dentist.

Intelligent people, on the other hand, know that dentistry is a matter of personal knowledge and skill and not at all a matter of merchandise. Many learn this by painful experience.

In any community where even one properly educated dentist conducts practise, there will be found some people who know that dentistry is professional work, that fine judgment and scientific skill are not to be expected of any man whose location, outfit, manner of practice and experience are adapted to the sale of teeth crowns and fillings. No man can be a shoddy salesman to one patient and a skilful surgeon to another.

The well qualified dentist receives his patients by appointment, keeps hands, instruments, outfit and office clean, never has a crowd waiting. He does not rush his work, use a “mechanical man,” not try to serve more than one patient at a time. Except to relieve pain in emergency, he does not work by lamplight. He does not make “a-set-a-day” nor \$4,000 a year either. When cavities are large, pulps exposed, or other difficulties are present, he does not say “Your teeth are soft,” and propose to extract them—to make room for the goods.

Selections

LOCAL SEPTIS AS A FACTOR IN RHEUMATISM AND GOUT.

By C. Wynn Wirgman, M.D., B.S. Lond., F.R.S.C. Eng., and
H. Watson Turner, M.R.C.S. Eng., L.D.S. Eng., Assistant
Dental Surgeon, Middlesex Hospital; Assistant Dental Sur-
geon, National Dental Hospital.

The microbic hypothesis of the origin of gout, rheumatism and rheumatoid arthritis, appears to be generally accepted in the recent literature of the subject. The distinction between the various forms of these diseases tends to disappear as it becomes more recognized that the many intermediate types shade off gradually into each other that no sharp dividing line can be drawn between them. Radiography lends its support to this view. The plates of the various types are hardly to be differentiated without knowing the previous history. Elsewhere* our views as to the probable foci of infection have been explained, but a brief recapitulation may be useful. Our attention was called to the possibilities of an original septic cause for the above maladies some time ago, and since then we have made it a routine practice to examine every such case thoroughly for any possible local sepsis. In every case such a condition has been found. In the majority of adult cases pyorrhoea alveolaris is the most common initial lesion, tonsillar sepsis to a lesser degree, but still not infrequent. Nasal disease has also been found, but is very rare in comparison with the previous two in adults, but in children adenoids and septic tonsils are the prevailing septic foci. Not one single case of rheumatism or gout has been found without some accompanying local sepsis. Of course, this has long been realized in an inverted way, for "rheumatic tonsilitis" and "gouty gums" are among the most ancient of medical terms.

As stated above, there are various situations where the sepsis may originate. Most of them are well recognized and no description is needed either of their appearance or potentialities; most, but curiously enough, not the one to which we believe the majority of cases occurring in adult life can be traced—i.e., pyorrhoea alveolaris. This paper will therefore deal principally with this form of septic infection. We wish it to be clearly understood, however, that it is not supposed to be either the sole source of infection in every case of these affections nor to give rise only to these particular diseases. On the contrary, it is allowed nowadays to be of the utmost importance in the anaemias and in many derangements of the digestive tract. This, however, is well recog-

*Clinical Journal, February, 1909.

nized, while we venture to think that its role in the diseases here discussed has been overlooked.

The types and signs, therefore, of this particular infection may be briefly described. The term "pyorrhoea" has been used for the sake of brevity and convenience to indicate any form of oral sepsis. Strictly speaking, it should connote the presence of pus. Actual pus, however, is by no means invariably present. Pyorrhoea, then, used in a general sense, in this paper may indicate any of the following types: (1) The superficial inflammation around the teeth in ill-kept mouths, which, once restored to a healthy condition, can be kept in order by the patient's own efforts. (2) Pockets between the gum and tooth and osteitis of the bony sockets found on examination in apparently well-kept mouths. A characteristic odour can nearly always be detected in these cases. The patients themselves frequently complain of some alteration in, or loss of, taste, and of tenderness or aching of varying intensity, due to exposure of dentine. (3) The genuine pyorrhoea, acute or chronic, where true pus can be squeezed from around the necks of infected teeth. (4) Dry osteitis, with absorption and recession of gums, which very frequently merges into (3). (5) Any combination of the above.

The formation of pockets of pus, leading to recession of gums, is invariably secondary to pyorrhoea and is due to the absorption of the supporting bone by chronic infective osteitis. Spongy and bleeding gums and pus which can be expressed from the sockets are all typical symptoms of this condition. Frequently the patient does not complain of toothache and many of the cases have quite good teeth. Caries is very often entirely absent. The exciting cause of pyorrhoea is not clear; possibly it is sometimes due to the tooth-brush as generally used. This is never surgically clean, and the stiff bristles must often lead to wounds of the gum around the tooth. Few people realize that no brush will clean the interstices of the teeth, where food lodges and decomposes. Floss silk is the only means of removing this debris.

If we grant, then, that chronic sepsis may be a determining factor in the onset of a rheumatic or gouty attack, there are two questions which arise: (1) Is a chronic sepsis always present in these cases? (2) May a chronic sepsis exist without rheumatism or gout? To the first the answer, in our experience, so far is Yes; to the second, Yes also. Until the bacteriology of the mouth is better known we cannot tell whether this may be due to a variation in the organisms or to soil resistance. We have an analogy in the case of diphtheria, where the Klebs-Löffler bacilli may exist in the air passages without giving rise to any symptoms. The next question is whether the attack consequent upon oral disease is due to the absorption via the intestines or to local extension via the gum and bone. It appears to be possible in both ways. A very frequent result of the first cleaning of a septic mouth is an attack of rheumatism. It is not an invariable result, but seems to depend a good deal upon the amount of injury to the soft tissues in

the cleaning manipulations. The attacks tend to disappear after the first few treatments. Other observers have noticed the correlation between these diseases and pyorrhoea, but have not found it in every case. This may be due to the fact that it is quite unusual to find members of the dental profession who recognize the condition at all. Therefore, it may be missed in a case where, to those who know how to look for it, there is abundant evidence of its presence. Again, it may be that the septic focus does not exist in the gums, but in the nasal cavities or in the naso-pharynx. In women, as Dr. W. P. Herringham has recently reminded us, the sepsis may be found in a chronic uterine or vaginal discharge. His paper is most suggestive, and this possibility should never be overlooked in a female patient.

In the treatment of these diseases it is obvious that our attention should first be directed to the septic trouble. Once this has been discovered, if early enough, or before general symptoms have developed, we may hope to benefit the case immensely. If, on the other hand, it is only noticed after years of illness, though it may, and should, be removed, yet we cannot hope, as a general rule, to do more than arrest the progress of the disease and alleviate pain. For, consider, if we grant that an inflamed joint is due to the fact of an organism settling there, there are two possibilities in the future history. One is that the germ, after setting up inflammation, dies, and no further trouble occurs unless a fresh invasion takes place. The other possibility is that the acute inflammation caused at the first onset dies down because of the attenuation of the virus or from other causes, but the microbe, having effected a lodgment, bides its time and multiplies locally, causing chronic irritation. In the first case we may evidently do good by checking the chance of fresh invasions; in the second only general treatment or surgical interference can be of any avail. Vaccines, except in cases where an unmixed infection is present, do not appear to be of much value. The answer, therefore, to those who hastily deny the possibility of this hypothesis and line of treatment is that there are the above modes in which the diseases may differ, and, once the second has taken place, cure, though possible, is only remotely probable, while in the first it is both possible and probable.

One great, possibly the greatest, difficulty is the length of treatment the gums require. Patients cannot realize that it is often practically impossible to cure the condition without removing teeth in order to isolate and render accessible for cleansing purposes those remaining. A so-called "cure" takes place by the dropping out of the teeth; but frequently the bone remains in a more or less diseased and inflamed state, even when the mouth is edentulous. There can be no question that it is important, if only for the sake of the digestion and general health, to improve this local condition as far as possible, even though it may be too late to cure the gouty or rheumatic symptoms.

Let us now examine the various types of the rheumatic and gouty groups with the septic conditions found (see table).

These cases are not "selected" in any sense of the word. The trouble in some is of recent origin, in others of old standing. Nearly all, after thorough local treatment, have found themselves better in health than they have been for years. The treatment of some of these cases throughout has been entirely confined to the local cause of infection without general treatment; in others general treatment has been concurrent with the local treatment. The local treatment adopted has been very careful cleansing of all teeth, gums, and pockets, avoiding as much as possible injury to the soft tissues. In cases where efficient drainage of pockets could not be obtained, extraction has been done, as it is much better to leave a tooth isolated, especially if it has a good opposing tooth for mastication, than to have a number of teeth on either side with foul septic pockets. In the very septic cases, where there was no hope of the teeth becoming firm under treatment, extensive extraction has been carried out.

In all cases of extraction, before operating, all the teeth and pockets have been, as far as possible, very carefully cleansed. This is a most important point, as very serious infection of bone and general septicaemia may follow extraction of septic teeth. In every case citric acid (3 drachms to the pint) dissolved in a warm solution of carbolic acid (1 in 40) is used as an antiseptic and astringent for the cleansing of the pockets. All the tartar is removed and the teeth and gums are swabbed round with the warm solution. Wisps of cotton-wool soaked in the solution are carefully passed into any septic cavity by means of a sterile platinum probe. The process is very tedious, as it takes about an hour to clean a mouth thoroughly. About six visits are usually required for obtaining a good result. General and local improvement is generally marked after the first two or three visits. It is of interest to note that on the following day, subsequent to local treatment, the symptoms are frequently worse, due to slight unavoidable injuries to the local tissue and consequent increase of local infection.

Having cleansed the mouth satisfactorily, and so removed the septic infection, it must be borne in mind that, except in cases of complete extraction or isolation of teeth, there must always remain pockets and sites for the accumulation of septic matter and subsequent reinfection. It is futile trying to make oneself believe that the pockets are cured, particularly in the great spaces between molars; consequently, the patient must learn to clean the gums and the spaces between the teeth besides using the tooth-brush; in other words, must begin for the first time to try to obtain a clean and healthy mouth. If in childhood it could be taught that it is absolutely essential, besides cleaning the enamel of the teeth, to clean gums and spaces between teeth at night, the prevalence of septic and unhealthy mouths among cleanly and educated people would be avoided.

It is not suggested that local treatment is the only desideratum in every case of rheumatism or gout. In acute gout colchicum, and in rheumatism salicylates, must also be exhibited, while for the local conditions much may be done by radiant heat and electricity. These, however, are all directed to the relief of symptoms and do not strike at the root of the matter. Let us now go into a more detailed examination of a few selected cases.

Some Cases, With Details of Treatment.

Case 1.—The patient, a man, aged 45, was seen on June 24, 1909. He complained of general debility, rheumatism, and excessive tenderness of the feet whilst and after walking; in fact, he was unable to walk more than 400 yards without a stick. As regards local sepsis, there was pyorrhoea, with large pockets between the molars; five or six of the back teeth had been lost. His mouth was treated, as explained above, six times in three weeks, an hour at a time being given to the process. The condition was then distinctly better, but he still complained of pain in walking. On July 19, the lower right wisdom tooth was removed; very large pockets existed between it and the twelve-year-old molar. Marked improvement followed, and in a week he was able to walk a couple of miles without any pain. Another tooth had to be removed, but on October 12—in all a period of about three and a half months—he reported that he was practically well, felt better than for years past, and could walk five or six miles with ease. No other treatment of any kind except cleansing of the mouth was employed.

Case 2.—The patient, a man, aged 35, complained of lumbago, rheumatism in the arms and legs, and general debility. He also showed signs of neurasthenia, with vertigo and dizziness. Eustachian catarrh was present. As to local sepsis, there was pyorrhoea; the lower left molars were loose and badly infected. After careful cleaning with carbolic they were removed. Subsequently the remaining teeth, with the exception of the lower canines, which were fairly firm and could be kept clean, were extracted also. No other treatment was adopted. As a result, all the symptoms originally complained of disappeared. A temporary denture was given in the last week in August, with which he was able to eat well. In October he had gained 1 st. in weight.

Case 3.—The patient, a married woman, aged 60, had very bad attacks of muscular rheumatism and lumbago, with great difficulty in walking. She suffered from anaemia and there was general weakness. She was very susceptible to influenza, which usually lasted about three weeks. As to local sepsis, there was very bad pyorrhoea, only fifteen teeth remaining. Six visits were made for cleansing, during which time the general health improved. All the teeth were removed in February except the lower canines. As a result there had been no rheumatism since, while there was a gain of 1 st. in weight.

Case 4.—The patient, a man, aged 40, had rheumatism in the

right shoulder and was unable to play golf in consequence. He had had electrical treatment for a year. As to local sepsis, there was bad pyorrhoea, although the mouth was carefully kept. It was non-purulent in type, but with many pockets between the molars. Four visits were made of one and a quarter hours each. The last visit was in June. In October the patient wrote to say that he has had absolutely no pain since the last treatment.

These cases are quoted to show that in certain cases cure is possible. We do not wish to suggest for a moment that the same result will occur in all, but the larger number of our cases have shown such definite improvement that we feel sure that early recognition of the source of infection is the main factor in the achievement of success. By more careful attention to the points that we have mentioned, either as a routine of life or on the first symptoms of an attack, we feel sure that the number of cases of these illnesses could be limited to an extraordinary extent. It is much to be hoped that the younger generation of dental surgeons will realize that their art is not purely a mechanical one, but that they can do much towards preserving their patients from the so-called gouty and rheumatic diatheses. At present we have not succeeded in establishing a connection between the types of pyorrhoea and the nature of the accompanying disease.—Lancet.

Proceedings of Dental Societies

OFFICERS OF THE MANITOBA DENTAL ASSOCIATION.

President—G. E. Bush, Winnipeg.
Secretary—K. C. Campbell, Winnipeg.
Registrar—H. A. Croll, Souris.
Treasurer—J. M. Rogers, Boissevain.
C. H. Walsh, Winnipeg; John Dickson, Brandon.

CANADIAN ORAL PROPHYLACTIC ASSOCIATION.

PRESIDENT'S ADDRESS.

A. J. McDonagh, Toronto, Canada.

Gentlemen,—At this, our annual meeting, it will be well to look backward and see what our Society, "The Canadian Oral Prophylactic Association," has accomplished during the last twelve months. As you will see from our worthy Secretary-Treasurer's report, we have had not only a fairly successful year financially, but have made most satisfactory progress in the educational side of our work. Last March I received an invitation from the Ottawa Dental Society, asking me to address them on the aims and objects of our Society at their annual banquet, which I did. Close upon this came another invitation from the Montreal Society, which, owing to pressure of other engagements, I was unable to accept. However, Dr. Grieve kindly took my place and ably championed the cause of our Association in that city.

At the last meeting we announced to you that the company which was then manufacturing hutax had failed. In deference to the wishes of the Association, the executive have done all they could to help the said company while it was in financial straits, by leaving the business of manufacturing hutax with them. We feel, however, that the necessity for such action has now passed, and if opportunity should present itself of bettering our position, we feel we must now deal with the manufacturer from an entirely business standpoint.

You have also been informed, through a letter which our Secretary mailed to you, of a bad batch of paste which did us a lot of harm the first part of the year, from the effect of which we are just recovering.

Notwithstanding these drawbacks, the sales have increased from 16,500 to 22,468 packages of dentifrice.

About the first part of June this year we succeeded in getting the brushes on the market, through Mr. Hargreaves, with whom we have an agreement for three years; and since they have been for sale there has been sold 4,320 brushes, the greater number

being the large size. Just here I want to say that the medium size, according to the opinion of your executive, is the proper brush. Therefore it is wise in prescribing to specify that you want the medium sized brush. More of these brushes could have been sold had Mr. Hargreaves been able to get them out, but as you all know, it is very difficult to get English firms to turn out anything in a hurry, and this brush has been no exception to the rule. Latterly, we have been able to get them in a little better quantity, and the difficulty, we hope, will soon pass away. We have tonight for your inspection a pamphlet of which you have often heard, and this is practically our first educational work. This pamphlet has been submitted to a large number of people, probably twenty or thirty, including dentists and educationists, and has been approved of by all, both from the standpoint of its educational work and its literary merit. The work of getting it up was entrusted to Dr. Geo. Grieve by the executive of your Association, and he has carried it out with care and ability. The Educational Department of the Province has approved of it and have agreed to send out ten thousand copies to the teachers in the Province. We do not intend to stop here, as we have ordered 25,000 to be printed, the remaining 15,000 we propose to send to the educated people all over the Dominion of Canada—to lawyers, judges, physicians, clergymen, and dentists—and if we have not enough we will have more printed.

The executive have been unusually fortunate in dealing with the Department of Education. They have been very gracious and kind to us, and have not refused any reasonable request we have made.

Your executive also claim to have been instrumental in having the chapter "Dentistry" in the new book on hygiene, to be used in the schools, put in better shape than it ever was before.

As you were told at our last meeting, the knowledge came to our Society accidentally that such a book was being prepared. We formed a committee for the purpose of looking into the matter and notified the President of the Ontario Dental Society, who immediately appointed a committee to take the matter up, and you probably know the result.

The executive thought it wise to have a folder explaining the aims and objects of the Association, and therefore asked Dr. Walter Willmott to get out such folder, a proof of which is placed before you this evening. We have had communications from dentists in some of the other provinces, carrying the idea that we should in some way co-operate with them so that they might benefit by our work or do work similar to ours. I have suggested to them that they form associate members in their provinces, and work as part of our Association. We have not, as yet, had any definite answer to that suggestion.

We propose in the near future to assist as much as we can those in the other provinces who are striving to further educational and philanthropic work in our profession, and to do it either

STATEMENT OF ASSETS AND LIABILITIES

Registered Name 'Hutax'		Capital Stock.....	\$ 125 00
approximate	\$ 25 00	Surplus	629 28
Charter for Company	10 00		
Plates, Cuts, Dies, etc....	23 00		
Seals, unused.....	34 50		
U. S. Pharmacopœia.....	2 50		
Accounts payable, W. H.			
Chapman	2 04		
Accounts payable, Lyman			
Knox & Co.	5 25		
Cash in Bank, Dec. 31, '09	651 99		
	<hr/>		<hr/>
	\$ 754 28		\$ 754 28

A. J. BROUGHTON, Sec-Treas.

Auditors { B. F. NICHOLLS
 { B. H. HENDERSON

MANITOBA DENTAL ASSOCIATION.

PRESIDENT'S ADDRESS.

By G. F. Bush, Winnipeg, Man.

In coming before you with the President's address to-night, I realize that this is the first time in the history of this Association that a President's address has been read twice by the same man. Let me assure you that I fully appreciate the honor done me, and feel myself all too unworthy for the position I have occupied.

From the Secretary's report you will see that many new members have been added to our roll of membership; by far the greater number of these coming in by way of the Dominion Dental Council, thus showing the usefulness of this organization. Several of those, also, who had left us and gone to other lands, have returned and resumed the practice of their profession amongst us. In the name of this Association I extend a hearty welcome to these new and returned members.

I draw your attention to the death, during the past term, of two charter members of this Association, Dr. H. H. Black, of Manitou, who died after a lingering illness, and J. C. Bower, who died suddenly in the city of Ottawa.

It is with much sorrow that I note there are still unethical men in our midst. Let me quote you from the President's address lately delivered before the Winnipeg Clinical Society: "Medical ethics were framed not for physicians alone, but for the protection of the public as well. They represent the deductions drawn from the accumulated experiences of the wisest and best physicians in their endeavors to restore patients to health and strength. Not infrequently they are viewed in the light of an octopus trust; but heaven help suffering humanity if doctors

threw ethics to the winds, and adopted the ordinary business methods of money-making."

It would seem patent on the face of it, that what the worthy doctor says about the profession of medicine, is also true of the profession of dentistry.

It is encouraging to observe that an overwhelming majority of the profession of this province are inspired with a broad and fraternal spirit, and a desire for continued improvement in their chosen vocation. The resuscitated Dental Society of Western Canada, so efficiently officered, was a grand success last year, and we look for even greater things this year. At the same time, Manitoba was not very largely represented at the last meeting of the Canadian Dental Association, held in the city of Ottawa. The management of the whole meeting was superb, and the comparatively few dentists in the Capital City set us an example we would do well to follow. If the Centennial Exposition materializes two years hence, I doubt not that we shall be called upon to show of what stuff we are made, and I am thankful to say, gentlemen, that I am certain every member will do his duty.

Many matters will have to be dealt with during the coming terms. For instance, the University of Manitoba is being re-organized. I am firmly of the opinion that the time has come when we should be a part of that body. Not, however, without careful thought and consideration, and the discussion of various points at one or several general meetings of this Association to be called for that purpose.

Finally, my friends, let me say, that it had been my full intention to retire for a time, at least, from being a member of your Board, in order that I should have somewhat more time to devote to certain personal studies under investigation. The fact that I have been the only one nominated to fill the coming vacancy for Winnipeg makes retirement out of the question. I thank you, gentlemen, and give you my word that whatever office I may occupy during the coming term, I will cast personal considerations to one side and use all that is in me to advance the interests of this Association and assist, be that assistance ever so little, in broadening the profession of dentistry in the Dominion of Canada.

CANADIAN AND ONTARIO DENTAL CONVENTIONS.

Toronto, May 31, June 1, 2 and 3, 1910.

The Canadian Dental Association and Ontario Dental Society are combining their meetings this year, the Convention to be held in Toronto, May 31 to June 3, inclusive.

All the Committees have been working for some time, and considerable progress has already been made.

Dr. D. D. Smith, of Philadelphia, the leader in the work of Oral Prophylaxis, has promised to give a Paper on Clinic. The Programme Committee is now in communication with other leading men, and hopes to secure them.

Arrangements have been made with the railways for a single fare return rate, upon the certificate plan, from all parts of Canada and several of the States across the line, allowing several days before and after the dates of the meeting.

The Entertainment Committee is planning something special in the way of recreation.

Arrangements are being made for Manufacturers' Exhibits.

This promises to be the largest and best Dental Convention ever held in Canada. Watch the journals for further particulars. Mark the dates upon your appointment book now. Other notices will follow this.

GEORGE W. GRIEVE,

Secretary of Executive Committee.

2 East Bloor St., Toronto, January 26, 1910.

HAMILTON DENTAL SOCIETY.

The regular monthly meeting of the Hamilton Dental Society was held at the Commercial Club Monday evening, Jan. 10, 1910.

There was a large turnout of the members to welcome the essayist of the evening, Dr. E. Cummer, Toronto, who gave a splendid talk on "The Path of the Condyle," illustrating his talk with drawings and appliances. A lengthy discussion followed in which Dr. Cummer brought out many new points.

The matter of giving a public lecture similar to the address by Dr. Noyes, for the Elgin Dental Society, is under consideration by the members.

O. S. CLAPPISON, Secretary.

OFFICERS OF THE ST. LOUIS SOCIETY OF DENTAL SCIENCE.

President—C. O. Simpson.

Vice-President—G. E. Hourn.

Secretary—J. P. Marshall.

Treasurer—C. S. Dunham.

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Advisory Council—C. A. Bowman, B. L. Thorpe, A. H. Fuller, D. O. M. LeCron, Adam Flickinger, W. E. Brown, E. E. Haverstick.

THE WEST MIDDLESEX AND LAMBTON CO. DENTAL ASSOCIATION.

At a meeting held in Watford on December 31, 1909, the West Middlesex and Lambton Co. Dental Association was formed.

A schedule of officers was agreed on, which it is hoped will establish a uniformity of charges for professional work, and that in keeping with the advanced cost of living and the demands for professional men.

Although the attendance at the organization meeting was small, great enthusiasm was displayed and those in charge hope for a good representative meeting in the near future, when an endeavor will be made to more fully outline the work to be carried on by the Association.

Dr. Geo. A. Fraser, of Parkhill, was elected President, and Dr. M. P. Corrigan, of Strathroy, Secretary.

IN HONOR OF DR. BLACK.

Reported by A. W. Thornton, Toronto.

The Chicago Adontographic Society gave a celebration in honor of Dr. G. V. Black in Chicago, January 28, 29, 1910. The first day was devoted to demonstrations and exhibits of manufacturers' articles. The first evening a paper was read by Dr. C. N. Johnson, "The Selection of Filling Materials and Methods of Insertion." The discussion opened by Dr. Ottolengue, followed by Drs. Woodbury and Root. The essay was very carefully prepared and well presented, but the discussion went far afield on the start and really never returned to the subject until Dr. Hofheinz, of Rochester, arose at almost midnight. There were over a hundred clinics given at the Chicago College on the second day of the meeting.

The function which brought the Odontographic Society's meeting to a close, was an event unique in the history of the dental profession. It took the form of a complimentary banquet to Dr. G. V. Black, without doubt the greatest living dentist in the world. It was held in the magnificent "Gold Room" of the Congress Hotel, one of the most beautiful banqueting halls in the United States.

Dr. William H. G. Logan was an ideal toastmaster. Naturally of a bright and happy disposition, he not only kept things running smoothly, but by his unquenchable good humor and a very enviable display of good judgment, kept the affair so thoroughly in hand, that there was not a single jarring element perceptible.

Dr. Thomas L. Gilmer, of Chicago, was the first speaker and

gave some personal reminiscences of Dr. Black. As Dr. Gilmer and Dr. Black have been very close personal friends for over forty years, it can be readily understood that Dr. Gilmer had much of interest to relate of the great man, the guest of the evening. To add to the interest of Dr. Gilmer's address, pictures were thrown on the screen, showing incidents and places connected with Dr. Black's early life.

Dr. William A. Evans, Commissioner of Health of the city of Chicago, spoke to the toast, "The Professional Man's Duty to his Community." Dr. Evans has a fine presence and is a splendid public speaker. After paying a fitting tribute to the life and work of Dr. Black, Dr. Evans said some things of vital importance to dentists, which demonstrated that without doubt he fully realized the value to the individual and to the community of oral hygiene.

Dr. Evans gave some details of his work as medical health officer of a great city, showing conclusively the relation between good health and good citizenship.

A characteristic saying was "No man, whose mouth and teeth are persistently neglected, can be in the best possible physical condition, and no man, other than the one perfectly fit get's a show for his white alley in this life." A most interesting statement made by Dr. Evans was "that many scarlet fever patients dismissed from the hospitals as cured, after the period of disquamation was past, carried contagion to other persons," and that he was convinced that very often such contagion was due to the presence in the mouth, and especially in carious teeth, of the germs of the disease.

He said further, that the State should see to it that the mouth and teeth of all school children were kept in a perfectly healthy condition. Competent dentists should examine the mouths of all pupils, and a chart should be given to each showing the condition of the teeth and oral cavity. Those who were able should pay the qualified practitioner to do any necessary work, while those who were not financially able should have the necessary work done at the expense of the State.

Just as school boards insisted on vaccination to guard against an epidemic of smallpox, or legally enforced quarantine, to prevent the awful ravages of scarlet fever, so should governing bodies insist on a hygienic condition of the oral cavity to promote individual physical fitness and to protect the community against contagion.

Others speakers at the banquet were Drs. E. K. Wedelstaedt, St. Paul, Minn.; A. W. Thornton, Toronto; J. Leon Williams, London, Eng.; Harry Morgan, Nashville, Tenn., and Edward C. Kirk, Philadelphia, Pa.

Before Dr. Black rose to reply, Dr. Frizzell, of Pittsburg, presented him, on behalf of the Pittsburg dentists, with a beautiful silver candelabrum; Dr. J. D. Patterson, of Kansas City, Iowa, with a "skull" in solid gold, bearing a fraternity emblem, the

work of Dr. D. O. M. LeCron, of St. Louis, Mo; Dr. Truman W. Brophy with a service of silver plate, on behalf of the Chicago "College men"; Dr. Charles P. Pruyn, with a quantity of silver cutlery, on behalf of the Illinois dentists; Dr. Don Gallie, with a beautifully bound book containing the names of the honorary committee, the resolutions leading up to the banquet, and the signature and address of every guest at the banquet; Dr. Ottolengui, of New York, with a tea service of gold, the gift of the "men of the East."

Then the grand old man, in a few simple words, expressed his thanks, his gratitude, and said "good-night, but not good-bye."

A pleasing feature of the banquet was the presence in the balcony of Mrs. Black, wife, companion and helpmeet of the honored guest, together with Dr. Arthur D. Black and his wife, the former a worthy son of a worthy sire.

Reviews

The American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M.D., editor "The American Illustrated Medical Dictionary." Sixth revised edition. 32 mo. of 598 pages. Philadelphia and London: W. B. Saunders Company, 1909. Flexible morocco, gold edges, \$1.00 net; thumb indexed, \$1.25 net. Canadian agents the J. F. Hartz Company, Ltd., Toronto; W. B. Saunders Company, Philadelphia and London.

Text-book of Medical and Pharmaceutical Chemistry. By Elias H. Bartley, B.S., M.D., Ph.G., Professor of Chemistry, Toxicology, and Pediatrics in Long Island College Hospital; late Dean and Professor of Organic Chemistry in the Brooklyn College of Pharmacy; late Consulting Chemist to the Department of Health of the City of Brooklyn; late President of the Board of Pharmacy of the County of Kings; Member of the American Pharmacy Association; Member of the American Chemistry Society; Fellow of the American Association for the Advancement of Science, etc. Seventh revised edition, with ninety illustrations. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street, 1909. (This is a work of over 700 pages).

In the revision of this text-book, in response to the call for a new edition but few changes have been found necessary in the general character and form of the book.

The spelling of chemical names used in former editions has been retained for reasons stated therein.

An attempt has been made to correct all typographical errors and misleading statements of the last edition, so far as they have

been detected. A considerable number of changes have been made in parts IV and V and some pages have been rewritten. In part IV the section devoted to the proteins has been rewritten and made to conform with the nomenclature and classification recommended by the Committees of the American Physiological Society and the Society of Biological Chemists. In the revision of a text-book there is a constant temptation to add to its size by the introduction of new topics. This has not been done, because it was felt that this book now contains all the essentials of chemistry needed by the medical student for which it was written.

It is believed that in teaching chemistry to medical students we should keep in mind the applications of the science to practical medicine. This has been emphasized in part V, and for this reason many substances properly belonging under the head of Physiological Chemistry have been omitted, to make room for a discussion of the clinical applications. The index has been made as full as practicable, to enhance its value for ready reference. The author would renew his thanks to the publishers for the loan of cuts from Landois and Stirling's "Physiology."

Modern Dental Materia Medica, Pharmacology and Therapeutics.

By J. P. Buckley, Ph.G., D.D.S., Professor and Head of the Department of Materia Medica, Pharmacology and Therapeutics, and formerly Director of the Clinical Laboratories, Chicago College of Dental Surgery. Forty-six illustrations. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1910.

For some time there has been a demand for text-books in dentistry, which should be specially prepared for use in teaching in dental colleges, students' books. While there are many books upon the subject of materia medica and therapeutics, there are few which are fully adapted to the needs of the student. This is, perhaps, the first attempt to prepare such a book upon this subject. It is quite satisfactory in most of the essential features. It is well printed, chapters clearly set forth, the arrangement is satisfactory; the type used in the headings and sub-headings is all that could be desired. The price, \$2.50, is within the student's reach. Books which cost more than four dollars are getting out of reach of the student.

Although there are some evidences of padding, as in some cases where a page is written upon a drug, only to be closed by saying that it is not used in dentistry. It is not quite clear to the reviewer why the surgical treatment of pyorrhoea alveolaris should be described in a work on dental therapeutics no more than the excision of a knee joint should be described in a work of general therapeutics. However, these matters detract little from the general excellence of the work. And as a teacher we confidently believe it will supply a place which has not been previously filled.

Dominion Dental Journal

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VOL. XXII

TORONTO, FEBRUARY 15, 1910

No. 2

"CLEANING" AND "FILLING."

Permit me to suggest a change in the terms now used to denote two of our most common operations.

According to the dictionary "clean," as a verb, means to make free from dirt. Whose business is it then to make a patient's teeth "free from dirt?" The dentist who decides that this business or duty is his may consistently use the term "clean" and allow his patients to command performance of his duty when they will.

On the other hand, the dentist who decides that the cleaning of the teeth is the patient's own duty must deny the propriety of the term "clean" as applied to any operation expected of him.

Being personally of the latter persuasion, I eschew the term "clean" as hitherto applied to the operation for removal of calculi. And in its place, for want of better, I suggest the term "scale."

We call the instruments used in this work "scales." When polishing of any surface is necessary, I see no objection to the term "polish." So "scale" and "polish" should be terms sufficient to indicate the operation in question.

Courtesy to my professional brethren forbids further argument against the use of this improper, misleading and objectionable term "clean."

"Filling teeth" or "treatment of caries?" Which work are we supposed to be engaged in? Which are we really doing? Which should we engage in?

Teeth may be "filled" without successfully treating caries and caries may be treated without filling teeth.

If "filling teeth" is not "treatment of caries," then what is it? A mere mechanical operation? What is "Operative Dentistry?" Have we any use for such a term as "treatment of caries," or does "filling" express it all. My suggestion is to think some about these terms.

W. C. G.

A MISPLACED MOLAR.

The accompanying illustration shows the left half of the lower jaw of the adult. The specimen was obtained from the anatomical laboratory of the University of Toronto. It is evidently from a person of middle life, which may be judged from the angle the



ramus forms with the body of the bone and also from the worn occlusal surfaces of the teeth. The teeth in the specimen would seem to be in distal position because, though it does not show in the illustration, there is no curve to form the anterior part of the bone, though the cuspid and lateral are both in the specimen. Besides these, there is a second bicuspid and first molar in almost normal position and a third molar, the crown of which is almost completely emerged from the bone in the sigmoid notch just posterior to the coronoid process.

The usually accepted theory of the development of the second and third molar is that the germ of the second is given off from the first and the third is given off from the second. This specimen, in the opinion of the embryologists, casts a little doubt upon the theory. The distance between the first molar and the third molar seems to be so great that one could hardly conceive of the third molar travelling so far, and yet, as was suggested by Dr. McDonagh, the tooth became improperly directed and more easily followed along the cancellous bone, being directed on every side by the compact tissue. Dr. J. Leon Williams does not think the theory formerly held has a sound basis.

CAUSE OF FIRE IN A DENTAL OFFICE.

Dr. Mabee, of Gananoque, Ont., reports having set fire to the cushion of his dental chair with the lens of his Dunn electric lamp. He left the lamp between his chair and the window when he was through using it the evening before. Within one minute after the window shade was raised in the morning the cushion of the chair was on fire. The lens of the lamp focused the sun's rays directly upon the cushion. Dr. Mabee says that if the window shade had not been drawn the evening before, there would certainly have been a conflagration in his office.

DENTAL ORGANIZATION IN ILLINOIS.

In 1904 the dentists of Illinois had an amendment to the dental Act before the legislation of Illinois, which was thrown out with but little consideration. On this occasion a Committee of the State Dental Society approached the Legislature in the interests of the Bill. They were asked how many members were in the society. They said "249." "And how many dentists in the State?" "3,000." "Oh, then you people do not amount to much." Dr. Arthur Black undertook the reorganization of the society, and in 1906 there were over 1,100 members, and in 1909 there were over 2,000 members. In 1907, when the same bill, which was thrown out in 1904 came before the Legislature, it passed both Houses without a dissenting vote. When there was some doubt of the Governor signing the Bill, he received almost 2,000 letters and telegrams within 48 hours. The same thing occurred when another amendment was asked for. If legislators are impressed that almost every dentist in the State or Province wants a certain Bill, they will gladly pass it. This same thing was learned in Ontario when the last list of private bills came before the Legislature. At first it was with difficulty the Legislation Committee could talk with the members, but as soon as they received letters from their own constituents they were pleased to discuss the matter. They need to be impressed with the necessity and desirability for action.

Editorial Notes

Dr. Ira Bower was elected alderman in Ottawa.

Dr. W. A. Burns, of St. Thomas, was elected chairman of the Board of Street Railway Commission.

Dr. Don M. Gallie, Chicago, will read a paper on the Oxyphosphate Cements before the Canadian Dental Association, June 1st, 1910.

Arrangements are just about completed for a single fare return for all those attending the meeting of the Canadian Dental Association.

In the January issue, by some accident, the names of Drs. Stanley and Juvett were among those receiving civic honors at the New Year elections.

If you play golf, bring your clubs to the Canadian Dental Association. A match will be arranged over the Lambton course between the dentists of Toronto against all others.

Dr. P. D. MacSween, who has been practising in Chilliwack for the past two years, has entered into partnership with Drs. Holmes and Hacking, of New Westminster, B.C.

The report of the Secretary of the Manitoba Dental Association showed that there were nineteen candidates admitted to the Association, ten being matriculated students. Five students were matriculated.

Dr. A. W. Thornton was one of the guests of honor at the banquet given to Dr. Black in Chicago, Jan. 29, 1910. Besides being a guest of honor, he spoke to the toast "My Country and My Profession."

In this issue appears the first of a series of copyrighted articles on "Electricity as Applied to Dentistry," by Mr. Leighton, graduate of the School of Practical Science, Toronto, and President of the Leighton and Jacques Company.

Mr. Henry, the proprietor of the Toronto Painless Dental Parlors, was fined for practising dentistry without a license, in Magistrate Kingsford's court, Toronto, December, 1909. An appeal was asked for by Mr. Henry but the magistrate refused to grant it. Mr. Henry then asked the Court of Appeal to direct the

magistrate to state a case for appeal, which was done Jan. 18, 1910. It is expected the case will be argued at this sitting of the court.

At a meeting of the Legislative Committee of the Board of Directors of the R. C. D. S., A. E. Webster was elected chairman and C. A. Kennedy secretary. The committee has under consideration a suggestion to amend the Education Act so that the certificate of a dentist will be sufficient evidence of illness in cases of dental diseases to allow a teacher to obtain his salary while thus incapacitated. And also an amendment to the Liquor Act, which will make it possible for a dentist to obtain whiskey for use in his practice, from a druggist in local option districts.

Dr. Eudore Dubeau, who has been for some years an associate editor of the Dominion Dental Journal, and held a prominent place in the profession of dentistry for the past ten years, was elected an alderman of the city of Montreal, February 1st, 1910. It is an especial honor to be chosen by the Citizens' Committee and elected at the present time. The city of Montreal has gone through a period of investigation into the management of its civic affairs, finding some of its officers and aldermen guilty of misconduct. As a result of this investigation, candidates above reproach were chosen by the Citizens' Committee, the great majority of whom were elected. Dr. Dubeau will be an important factor in civic affairs in Montreal.

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Dominion Dental Journal

VOL. XXII

TORONTO, MARCH 15, 1910

No. 3

Original Communications

RATIONAL METHODS OF BRIDGEWORK.

By W. D. N. Moore, L.D.S., D.D.S. Chicago, Illinois.

Read before the Toronto Dental Society, Feb. 15, 1910

Since the earliest days of dentistry, the best methods of supplying missing teeth in the human mouth have been a subject of keen interest to the conscientious dentist. To substitute these lost organs, bridgework has been extensively practised to the gratification of many patients and with disastrous results to many others. While an inestimable amount of good has been done to our patients by means of bridgework, it is, however, a deplorable fact that this same practice is responsible for much irreparable destruction to human mouths and many conditions have been made profoundly worse by its use. From an aesthetic standpoint, bridges have too frequently been so conspicuous to keen perception as to arouse harsh criticism upon the profession. These faults are not always due to the fundamental principles of bridgework but more commonly due to the lack of study and knowledge of the requirements of each case together with careless technic in the construction of bridges. Observation has proven to us that the principles pertaining to the bridging of teeth under all conditions, are to be regarded as unsafe for practice. Even under favorable conditions and careful execution, the principles of this means of supplying missing teeth are not to be overestimated. The reason is clear. As soon as we subject more stress upon a tooth or root to be used as a support for a bridge than nature provided, we are endangering its vitality more or less. This, then, together with the unnatural conditions that bridgework invites, is the difficulty we have been unable to fully master.

Knowing then the disadvantages and the limitations under which bridges are to be used, it is essential that sound judgment and rational methods must be employed if the best results are to

be expected. Each case is a law unto itself and must be considered individually. From our examination of each case, we must conclude whether fixed or removable work is indicated, and this first step cannot be too strongly emphasized. The fixed bridge is indicated in those cases where the stability and location of the supporting teeth would warrant sufficient resistance to withstand the stress that would be brought upon it in mastication. This cannot be definitely estimated but careful observation together with some experience, should enable one to arrive at a conclusion. Where indicated, better results have been obtained by the use of the fixed bridges than any other style, but where the conditions contraindicate its use and hygienic measures are to be observed, better results can be gained by using a removable piece of work, since the stress is not entirely borne by any of the teeth to which the work is attached, but by the tissues upon which the work rests.

The subject of attachments of fixed bridges to the supporting teeth has been one of much diversity of opinion. More censure has been charged to the practice of bridging teeth due to this one important part of it, than any other belonging to bridgework. In this day of constant plea for prophylactic dentistry, its importance seems to have too frequently gone unconsidered. The injury to tooth, pulp and gum tissues have been so much in evidence in the past, that more rational methods of attachments for bridges are demanded if the best results are to be insured.

It is essential that a properly constructed attachment for a bridge be characteristic of strength, of non-irritation to surrounding tissues, and, where exposed to view, of esthetic appearance. Of all the radical changes that have been wrought in the practice of dentistry by means of the casting process, no department of it has been more widely benefited than that of bridgework. Its possibilities, by this process, are made so far-reaching in its range of application and usefulness, that results formerly unknown to us have been made simple and practical. Accuracy has been made more certain and opportunities for artistic work have been greatly increased. In nearly all styles of attachments, the casting process has been both useful and valuable. As in other work, so has it been in constructing attachments for bridges, personal equation plays an important part.

One of the most commonly used attachments for bridgework, especially for bicuspid and molars, has been the gold telescope crown. When properly constructed, with its band accurately fitting the root, it has rendered good service and must be considered a strong and a reliable attachment for a fixed bridge. Where technic has not been altogether at fault, the band encircling the root has been more or less injurious to the surrounding tissue. This applies to all crowns possessing a band and it is particularly true in many mouths where gum tissue is highly sensitive to even minimum irritation. Probably its greatest evil has been when in

indifferent hands it has shamefully injured the membrane about the roots on which it was placed. When exposed to view it has been too conspicuous to be tolerated by the patient and the dentist of high esthetic sensibilities. The cast gold crown, which perfectly fits every part of the projecting end of the root, is a much more preferable style of gold crown to use. It causes less irritation to the soft tissues and possesses the minimum amount of cement to become foul by absorption of the fluids of the mouth, while at the same time has the maximum strength of attachment to the root.

The porcelain baked crown of the proper construction has been worthy of commendation both for its utility and its esthetic quality. But the technic of its construction seemed to demand more than it was universally given by all operators and it consequently was regarded as too liable to fracture under stress of mastication. Casting has made it possible to obtain good results from the use of the porcelain detachable pin crown. This style of crown, on account of its strength, its capability of adaptation to the root without irritation to the soft tissues, together with its artistic possibilities has given it a wide range of application and usefulness. The porcelain can be so ground on the lingual and proximal surfaces to permit of sufficient gold to which the metal supporting the dummies of the bridge can be securely attached. When properly constructed, it possesses a combination of good qualities that promises to make it a valuable attachment where so many requirements are to be desired.

Since the advent of casting, many other forms of attachments have given place to the cast gold inlay. There has been a wave of enthusiasm for its use and many failures have resulted due to an improper knowledge of the requirements of cavity preparation and other means of providing stability for the inlay when used in connection with bridgework. This, however, is no fault of the principle of inlay attachment, where indicated for bridgework. An inlay can be constructed to be as stable in its attachment as the requirements of any ordinary bridge might demand. This may necessitate the use of small pins in the dentine or a dowel in the pulp canal, but precludes the further destruction of tooth structure that crowning requires. In cases of small bridges, pulps need not be sacrificed but sufficient strength can be acquired by proper cavity preparation together with small pins, such as can be obtained from porcelain teeth, placed in the dentine. Where decay or defective fillings in the supporting teeth permit the use of an inlay on the two proximal surfaces and the occlusal surface of a tooth, neither pins nor post will be required for a bridge of ordinary length. It must be remembered that cavity preparation for inlays to be used in this way must be exact in every detail. The cavity must be extended well to prevent lateral stress from dislodging the inlay. A well prepared cavity will show reasonable depth, a flat seat and step, definitely formed angles, a

mechanical occlusal anchorage and the removal of any weak margin or cusps for the subsequent protection by gold against stress. A properly inserted gold inlay in a properly prepared cavity has many advantages over any other style of attachment. By its use we can obviate extensive tooth and many times pulp destruction together with irritation to the surrounding membranes. In case a supporting tooth requires additional strength to endure the strain upon it, an inlay in the adjacent tooth is an ideal reinforcement and is frequently demanded. This, then, would seem sufficient reason to regard such an attachment as a rational one for this purpose and well worthy of our best skill in its use.

The requirements of each bridge should determine what style of dummy would be best to use. If the occlusion is such that a very limited space is offered and maximum strength is demanded, the all-gold dummy would be indicated especially for a posterior bridge since position favors it. In lower posterior bridgework, particularly in supplying the loss of the first molar, so common in practice, an all-gold dummy comprising only an occluding surface is indicated for hygienic reasons but contraindicated in the upper arch, however, as such a fixture would afford an ideal lodging-place for accumulations. All gold dummies are rarely indicated and should be on account of their unsightly appearance even when used with the utmost discretion.

The porcelain facing with the gold backing and occlusal surface, if one, has been commonly used to good satisfaction for dummies in bridgework. Apart from the gold on the occlusal and incisal surfaces being more or less conspicuous, the porcelain facing loses its resemblance to natural tooth color and is very often lacking in the artistic. Probably a more serious objection to this style of dummy is the possibility of the facings to fracture under stress of mastication, especially when it has not been well protected by a sufficient thickness of gold on the occlusal edge of the facing. To repair this successfully has been a difficult task. It has been demonstrated that porcelain facings subjected to the heat required for soldering the pin to the backing, causes many times a fracture of the porcelain that is readily seen, and at all times many invisible "checks" that are detrimental to the integrity of the porcelain.

Casting has again come to our rescue and permitted the use of a detachable facing more artistic and more esthetic in appearance and possessing greater strength than the one to which we have just referred. The porcelain crown with the detachable pin is at present the only supply to be obtained for this purpose. It requires some preparation by grinding to accommodate the gold casting which supports it, but this slight inconvenience is recompensed by the results that are obtainable by its use. A well designed facing for this purpose, and equally applicable for single crowns, has been made by Dr. Hart J. Goslee and is said to be in process of manufacture by one of the large dental firms at the

present time. Those who know Dr. Goslee's ability in this respect, can appreciate what a facilitation this will be to artistic crown and bridgework. This kind of facing supported by a gold casting that is not exposed to view, combines many favorable considerations. These facings, when cemented to place, lose none of their translucency, possess much strength, and in case of fracture are readily replaced by duplicates being kept, or the numbers of the mould and of the shade of the original being recorded. Many other forms of detachable facings are made, each having their respective advantages and disadvantages.

The dummies of all porcelain construction and used when indicated in porcelain baked bridges, are the highest type of esthetic production in dental bridgework. They have been condemned on account of their lack of strength, and while it is true porcelain bridges have failed, it is equally true that it has been generally due to inferior technic in their construction together with a lack of knowledge of the requirements and of ability to meet these demands. Sound judgment is the important factor in the use of such a bridge. I know of no practice that tends to the higher development of a dentist, than a thorough knowledge in the construction of such bridges, unless it be the construction of porcelain dentures. Not only is all the artistic taste in his make-up brought out but an exactness and thoroughness of doing things that makes a dentist a man of no ordinary individuality. Your essayist is not in sympathy with any work, no matter how beautiful, of a temporary character that could be otherwise, but he is opposed to placing a mark upon any patient by which the community recognizes that individual.

Dummies that are used in connection with gold should be assembled separately from the work to which they are to be attached. If the porcelain facings are supported by a casting, it is well to have this casting in one piece and so closely fitted to the work to which it is to be attached, that there is close contact with it. This, when soldered to it, requires but the smallest amount of solder, which minimizes the shrinkage that might otherwise prevent the attachments from going to their proper positions on the supporting teeth. Special care should be taken where inlays are serving as supports for the dummies. The least change here is disastrous and makes an inlay a treacherous attachment. Inlays should be distinctly carved and shaped to a definite restoration of the portion of tooth they restore, not only for artistic requirements but to give it a distinct seating in the impression in case they are dislodged in removing the plaster. Perfect models are necessary for correct results. In the whole procedure there is no place where thoroughness can be disregarded, and in proportion to our consideration of this fact will our efforts be successful.

It would be too much to consider removable bridgework at this time, but in order to successfully guard against failure in fixed bridgework, the use of removable bridgework is important

and of great service. Its indications, its various types of attachments, its methods of supplying missing teeth, would be ample for an essay in itself.

In either fixed or removable bridgework there is more opportunity to-day for individuality and the practice of more rational methods than ever before. Common sense and sound judgment at the beginning, coupled with the closest application in the execution of details in each and every step of the technic, are certain to bring the best satisfaction—success for our pains.

Discussion.

Dr. Thornton said while bridgework had been of great benefit it also had done much irreparable damage. We often give our patients an idea that our work is going to last the rest of their lives, while as a matter of fact it is impossible to say how long certain operations may last. It is too often the habit of dentists to leave the impression with patients that they are paying for the material used and not for the services rendered. Banded crowns are gradually giving place to others because they irritate the free margin of the gum.

In the opinion of the speaker no porcelain facings or crowns would be subjected to the heat of soldering within five years. More and more of the detachable crowns and facings would be used in the future. A U-form of inlay attachment on a lower bicuspid for a bridge is less secure in such positions than the full Carmichael attachment, which covers the lingual cusp where fracture often occurs in the simple inlay attachment. The all-gold hygienic bridge recommended for lowers by the essayist, might also be used for uppers if made by swadging all the cusps between the abutments at once and placing German silver bars from abutment to abutment and covering these with solder.

The pleasing feature of the paper was the call for judgment in selecting cases for bridgework. This judgment must be developed at some time in a dentist's career, and there is no better place than while at college. While all scientific subjects are desirable, yet there must be no neglect of their application to the daily needs of practice.

Dr. Trotter asked what the essayist meant by cast gold crowns as opposed to all-gold banded crowns. In his mind much injury had been done by the banded crown, and the warnings of the essayist were opportune. He congratulated the essayist on the beautiful specimens of work he presented to illustrate his paper. In the cases where detachable porcelains were used for dummies it brought the supporting base so close to the gum that uncleanness would be the result. It might in such cases be better to make a full saddle.

Dr. Doherty said inlay workers often did not take into consideration all the forces which might cause dislodgement of a bridge. The lateral stress was often much harder on inlay attach-

ments than the length of the space. The small pins in the inlays, as shown by the essayist, are a great advantage in security.

Dr. F. D. Price—He had given up using porcelain bridges until recently he saw men building concrete walls and in these placing fine iron rods to strengthen the structure. He is now carrying out the same idea in porcelain bridges. Not soldering the fine platinum even, but floating it into the centre of the body as it is being built up. He also pointed out that a bridge attachment must be sufficiently strong to bring with it the other tooth when pressure comes upon one attachment. The periodontal membrane, being like a cushion, presses down at one end and must pull the other end with it.

Dr. Badgley asked how teeth might be supplied which were absent posterior to the first bicuspid on one side below, all other teeth being present.

Dr. Moore—All depended upon conditions present. Would consider a Roach attachment on the bicuspid and a wire extended around the lingual of the anterior teeth, reaching the first molar on the opposite side, where a Morgan attachment might be used. He might consider clasps on the two bicuspids.

Dr. Capon arose to congratulate the Society on having an essayist who could make such beautiful specimens of bridgework. He desired to express his personal thanks to Dr. Moore.

Dr. Grieve was pleased that he had seen the specimen showing how a missing lateral might be replaced. In his practice of orthodontia, cases are not infrequently met with where the laterals have failed to erupt.

Dr. Caesar arose to thank Dr. Moore for his paper and the privilege of seeing such beautiful specimens of technique work. He agreed with Dr. Thornton that there is not enough time spent on prosthetic work in our colleges. He thought a lecture on bridgework should be given every day during the whole session. In fact, he believed it would pay the profession to employ all of the time of such a man as Dr. Cumner in prosthetic work. It must be a gratification to Dr. Willmott to see such beautiful specimens of work done by one of his own boys.

Dr. Willmott said he was not a bridgework fiend, but believed in putting bridges where suitable cases presented themselves. He felt that the principles laid down by Dr. Moore to be the correct ones. After many years' experience he found fewer cases for bridgework than the recent graduate. In his opinion there was a great neglect of prosthetic dentistry, and instead of bettering the condition we have made it worse by discontinuing pupilage in Ontario. The high matriculation standards may hinder the sons of mechanics from entering dentistry, which is a distinct disadvantage because mechanics is a natural instinct which is not found among the sons of the so-called educated classes. He closed by congratulating Dr. Moore for his paper and the models he presented. He also said that Dr. Moore was like many other Canadians

who had gone to the United States and made a place for themselves in the larger opportunities of a large city.

Dr. McDonagh believed that attachments for bridges should be made with crowns, the bands of which did not reach the gum, and inlays with pins. He wished to add his congratulations to the essayist.

Dr. Eshelman, of Buffalo, was present, but arrived too late for the paper, and therefore declined to discuss the subject, except to say a good word for the models shown.

Dr. Moore, closing, said he was pleased with the keen interest shown in the subject and thanked the members for their expressions of good will toward him. He said there was always a very warm feeling in his heart for the old Ontario boys, and especially those with whom he had been associated at college. He was sorry he did not allow quite time to complete some specimens which he had shown. In all bridgework much judgment is needed to get good results. No one method is the best or is suitable in all cases. Every effort should be made to preserve the tissues around the root. In some cases bands cause no irritation while in others the same kinds of bands would cause great irritation. Some tissues are more resistant to irritants than others. While the all-gold cast bridge does well for lowers, they are not so suitable for uppers, because there is often lack of room for cleansing and there is the exposure of more gold. Porcelain bridges are indicated where there is much loss of tissue and for esthetic reasons dummies may fit close to the gum in the uppers but should be away from the gum in the lowers. Some form of detachable porcelains should be used in all bridgework. The Davis crown is used in the models shown. There is much difficulty in getting a good adaptation of the wax to the end of a root to make a cast base for a detachable crown. It is better to burnish a piece of pure gold to the end of the root and then cast onto this.

Dr. Amy moved a vote of thanks to Dr. Moore for presenting the Society such an instructive paper and set of models. Dr. McLachlan seconded the motion.

DENTAL FEES.

BY MILTON GRAHAM, D.D.S., L.D.S., OTTAWA, ONT.

Read before the Ottawa Dental Society.

When called upon at our last regular meeting of this Society to read a paper for to-night's meeting, I raised an objection, thinking that I was too inexperienced to undertake such a task, but when my worthy confrere, Dr. Robertson, remarked that "I had cut my eye teeth," I had not the nerve to decline, and as there was no special subject set before me which I was to punish you with, I decided to choose a weather-beaten one and take, as the Irishman says, "A long shot at it."

The subject I have chosen to-night is "Dental Fees," or, in other words, the remuneration we as professional men may receive for our dental services. This subject of fees, while perhaps as old as that of root treatment, cavity preparation, extraction, etc., is nevertheless one of the most important questions before the dental profession to-day, and the great majority of dentists throughout the country will agree that in the matter of professional remuneration a very unsatisfactory condition exists, and there is room for immediate improvement. Right at the start it is not too broad a statement to make that the present dental fees in Ontario, especially in our own city, are too low by at least fifty per cent., and secondly, only dentists themselves are to blame for this condition of affairs. During the past five years the price of living has advanced at least fifty per cent., yes, I think I might be safe in saying that it has nearly doubled, everything pertaining to our wants and necessities of life have advanced to a high pitch, until we sometimes wonder where they are going to stop. Yet the poor, unbusinesslike dentist must plod away, giving his energy and skill over his nerve-racking work without the slightest advance in fees, in fact for some of our operations our fees are lower than they were ten years ago. This does not mention the higher grade of our work and skill required in modern dentistry, which should be the basis of all fees. The more exacting work to-day demands more skill, and consequently larger fees, than those of a decade ago.

It is humiliating to note that our fees are the same or less than the wage of the artisan. A blacksmith's time is rated at fifty cents per hour, a bricklayer and stone mason are rated higher. Now do a little mathematical calculation regarding our fees: Add the number of hours you have worked last year, then your cash receipts, and divide and note the result. You will be horrified to see your figures. To see at what a small fee per hour you have been giving your services at that nervous, exacting work. If we do not value our services, skill and time ourselves, our patients certainly will not; and as I said before, this is wholly the fault of

the dentists themselves, for no patient will pay more than is asked of him, and how often you feel surprised at your moderation when a patient comes into the office to pay his bill, when he remarks, "Well, Doctor, I think you were very reasonable. I thought my bill would have been a great deal more."

Did it ever occur to you that in your entire course of lectures during your college career, the subject of fees was never even once mentioned? For my part I attended four sessions at the Royal College, I heard excellent lectures on Medicine, *Materia Medica*, Therapeutics, Surgery, Anatomy, Dentistry both operative and prosthetic. I was told how to keep a dental office clean and tidy, how to sterilize instruments, in fact everything that pertains to dentistry. How to treat my patients in a courteous and gentlemanly manner; yes, I may say I was taught, putting the whole course in a few words, "to be a general slave to the public." But in that whole four years I never once heard the subject of fees brought up for instruction, or how we were to be remunerated for such—I was going to say slavery, but I had better choose the more ethical and professional phrase—professional services.

Now, in my opinion where the root of the trouble exists is within the college lecture room. We sometimes denounce the public for calling our work a business, but I feel, and I think you will all agree with me, and I do not want to belittle my profession in the slightest, when I say that if we carried on our dental practical in more of a businesslike manner, I am speaking now entirely on the financial side of it, we would have more set aside for the raining day, and there would be fewer dentists die like paupers instead of professional men, who should have a decent financial and social standing in their respective communities.

One of the great questions that confronts our dental board at the present time in Toronto is, how are we going to get rid of the advertising man, and he is the genius who is perhaps the greatest cause for our fees not being higher. The college authorities say they can do nothing towards getting rid of the advertising man when he has once started up and has hung out his ridiculous signs, and cuts fees and advertises work that they never do for the fee they advertise. Yes, how are we going to get rid of such men? Well, the only way I know is to cease making such men or turning such men loose on an innocent public.

Let us go back to our colleges where they are educating such men.

They talk about raising the standard of our profession, and that is right; but that is only half of it. They are now putting our standard on such a high plane that for a young man to enter a profession he is required to have more than a high school education. He should really have a B.A. course, and while he has been acquiring that, has he had a chance to learn anything about getting the dollars that pay for that course of higher education? Does he know anything about the value of a dollar? You take that

man into a college and give him a professional training, he is taught how an operation should be performed, but I have never yet heard of a college which teaches a man how he should get remuneration for that operation, or what it is worth to his patient or to himself.

I do not wish to cast any reflection on my alma mater, or on her teaching staff, or methods of educating professional men, but I believe she is deserving of some criticism along these lines. When I attended the R. C. D. S., and I fully believe it is the same to-day, for that is only three years ago, too much stress could not be placed upon dental ethics. Yet they go to work and poison every one of their students and the public as well, by placing the students in the infirmary, and instructing them that they are only to charge for material used, and the patients who come there know this, and consequently are educated up to this fact that they are buying a silver filling, or gold inlay, or porcelain crown, consequently this public go and spread this condition of affairs broadcast all over the city of Toronto, and finally it spreads all over Ontario, but the poor student who breaks his back over these people must not dare to mention to them the good services he is rendering them, or how much valuable time he is giving them. He is merely in the eyes of these people an apprentice in a hardware store.

Now these men receive a degree of D.D.S. and go out to practice their calling on the public, and a large percentage of them go out to practice with the very same idea of charging their patients; and it is only reasonable to expect this, only they say to themselves, a silver filling I charge fifty cents for in the infirmary, I will now charge seventy-five cents or a dollar for. And consequently the community where these men are located are educated up to this standard. Is it any wonder, then, that we have a low professional standard among the other fellow practitioners or men of other professions, such as law or medicine. Now, I trust you will not consider me laying too much stress on this point, but I merely wish to be clearly understood. The men themselves are not altogether to blame, for we are all hungry for the almighty dollar when we leave college. The other day I had a patient go into my chair. She said, "I want two silver fillings inserted, but first of all I want to know what you are going to charge me." "Well," I said, "madam, I can hardly tell you that just now until I have finished, as I do not know how long I will be, and these teeth may require several treatments." She immediately remarked "that I was not like the last dentist who worked for her, as he had two grades of silver, one for which he charged one dollar a filling, and the other seventy-five cents." "Well," I said, "did he not charge you for his time?" "No," she said, in a peculiar tone of voice, "how could he have the nerve to charge me for his time, when he was only about five or ten minutes putting in those four silver fillings that you see in my mouth." She

also stated that this particular dentist took down two different bottles from his cabinet, one was the dollar silver and the other the seventy-five cent grade, and pointed out to her how fine grain and bright the one was, while the other was coarse and rough. Now I merely quote this as an example to show you what little value is placed upon our services and skill, and until such time as we cease educating our patients that we are selling material, then and only then can we raise the standard of our profession and our fees.

The question here arises, how are we going to educate the public that we should receive higher remuneration for our services? One way is to educate them in our offices, that our services, advice and instruction how to take care of the teeth, is worth something, instead of educating them that we are selling material.

An incident occurred in our office during the past week which will illustrate my point. I had just completed some dental work for one of my patients, and as I was cleaning his teeth before dismissing him I happened to drop the question, "How do you brush your teeth?" because upon observation I found that his gums were receding very rapidly. He was a gentleman who took great pride in keeping his teeth clean. He said, "I have a good stiff brush, and I brush them in the usual way, straight across the teeth several times." I said, "I will show you a way which to my mind is a good deal better, and which will not injure your gums." I had a tooth brush there, and I went to work and instructed him to brush down on the upper teeth and up on the lower. I pointed out to him that while he was brushing his teeth in such a way he was not only injuring his gums but he was also driving all the particles of food and debris in between the teeth, and hence he would set up tooth decay, while in the other way the bristles of the brush removed all this. "Well," he remarked, "that piece of instruction you have given me is worth more than all the work you have given me before," and I do not think he was casting any reflection on my workmanship. "Why," he said, "that is the common-sense way, and the other way appears ridiculous now. I will go home and instruct my wife and family how to brush their teeth, and you can add that advice onto my bill when rendering it," and I fully intend to take his tip. "Why," he said, "I am forty-one years of age and have been going to dentists all my life, and never knew how to brush my teeth properly." Now this is a case where there is no material sold but only a little advice given, and I claim it was a great sight more value to that patient to know that than to sell him a beautiful porcelain crown, and he deserves to pay for such advice. Was this instruction not worth as much to this man, his wife and family, as the advice of his family physician, who tells him when he is constipated to go to the nearest drug store and get a good purgative, and he will be all right? Or his lawyer who charges him eight dollars for telling him his house is four inches on the other man's property, and

if he does not make some concession the other man will erect a high board fence. But this does not seem feasible to the public for some reason or other, that our services should be worth as much to them as the physician or the lawyer. The average patient considers our advice practically worth nothing, and the fault is ours. But first of all with the college which educated us. The medical man and the lawyer are men of learned professions, while ours is merely a secondary consideration.

The other day a mother and her daughter came into our office; our assistant came over to me and told me there were two ladies who wanted to see me. Upon consultation with the mother, I found that I had been recommended to her to extract her daughter's teeth. I examined the girl's mouth and found her teeth in a deplorable condition. I advised a general anaesthetic, and inquired who her family physician was. She was a country patient and did not have any special one, but said she knew a certain physician in the city. I said he is a good man, and why not have him. So she agreed. I then gave her the usual instructions and made an appointment with her for nine a.m. the following morning for the operation, at the same time making arrangements with the doctor. She came in the next morning at nine and I got her all ready. The doctor appeared about nine-thirty, as they usually do, a half an hour late, and he administered the chloroform, and I extracted, with the assistance of my partner and assistant, seventeen teeth. The doctor was in the office about twenty minutes or about half an hour at the most; he walked out, the mother of the girl following him, before the patient was conscious. She inquired of him what his fee was, and he said five dollars, and the mother paid it willingly. Now that patient took up about two hours of my time, saying nothing of my partner's and assistant's, and she used the anaesthetic room for over two hours, soiled a lot of linen and dirtied all my instruments. The mother came to me when they were ready to start and said, "Well, doctor, I suppose you will be making my daughter a full upper and lower set of teeth and you will not charge us anything for to-day's work." "Well," I said, "madam, does that seem fair to you, after all we have done for your daughter, that we should receive nothing, but merely have the privilege of making your daughter her teeth? You paid the physician five dollars for his services without a murmur. Now, as a fair-minded woman, don't you think I have rendered your daughter just as valuable services?" and I explained the whole situation to her, after which I exacted a fee of five dollars also, as a deposit on the work we did. Now I claim the only way we as dentists are going to rid ourselves of this unsatisfactory condition is to educate each patient that our services are worth something to them and that we are more than mere mechanics, and our time, skill and services should be rated just as valuable as the men of the other professions.

Now let me sum up a few ideas that have occurred to me

lately: First—A dentist should charge for everything he does, even if the fee is only twenty-five or fifty cents. In the course of a year he does a host of small operations which with the small fee for each would amount to quite an item, and at the same time would impress the patient with the fact that time and brains are too valuable an asset to be given away these days. Moreover, patients should be made to expect to pay. A small charge should be made for examination and consultation, as these require time, and only one who is qualified can do these things.

Second.—Never under any circumstances guarantee any operation; give the public to understand that they are paying for professional services and not buying an article, and that you are giving them your best possible services. At the same time be courteous enough to rectify any mistakes or repair any work that might not have reached your ideal. The lawyer gets his fee whether he wins his case or not, likewise the physician, whether his patient dies or recovers, both because they have given their best services to the case, and did not guarantee anything. The public are too long used to the idea that they will pay for a piece of work when it fulfils their standard of a test.

Third.—Don't boast of the thousands you are making every month. It is bad taste, and people will look upon you as a robber or a liar, and your business troubles will increase accordingly. All truly professional men keep the business side of their profession strictly to themselves. We are judged by our worth as an operator and a gentleman, not by the dollars we make. Never haggle with a patient over the fee. Nothing is so unprofessional or demeaning. Have a just fee in accordance with the services rendered and stick to it. The public are always suspicious of and lose respect for the man they can beat down.

Fourth.—Extracting free when intending to make a denture. Country dentists have more of this to contend with than city practitioners, but it is a rigid custom with some at least.

Why will any sane man extract free ten or twelve foul teeth, and often a dirty and risky chloroform case, calling for large expenditure of time and nervous energy? Very often no deposit is made and the patient fails to return to have the denture inserted. A fee should be charged for the operation. This is independent of the rest of the work, and is only fair to those who pay the same fee for the denture when they have not teeth to extract. Another case is when teeth are treated without extra charge when filling. This seems very much like quackery, and it is hoped that no self-respecting dentist does this class of work for nothing. It is scientific and should demand a good fee, also the average patient is pleased to have a tooth comfortably treated and is willing to pay for it.

Fifth.—Cash Basis. Is it not possible to have our practice on a cash basis, each operation to be paid for when completed, or

at the most within thirty days? There is no reason why a dentist should wait six months or a year for his money. Very often that patient will pay cash at a departmental store for an article that cost five times the amount of his dental bill, or pay cash for a pleasure trip, while he keeps his dentist waiting for a bill one-quarter as large. The writer fails to find any valid reason why professional men should be paid after all other things have been settled for. We have bills, and often large ones, that have to be paid. "Promptly paid is twice paid," and as a rule a patient is more pleased and satisfied with his work if he pays cash. It may be superstition on my part, but we invariably find that a patient who pays at completion of work rarely returns to complain, also while a patient is owing you he will not have more work done, or else he will go to some other office to have it done. Nothing in the whole practice of dentistry will be found to be so satisfactory from every point of view as conducting the business part of our profession on a cash basis. We could accomplish this end if we exercise the idea of fraternity more, and help each other.

In closing, I ask you not to criticise too severely my first attempts at writing a paper. I live in the hope that I may do better the next time.

DEVITALIZATION OF THE DENTAL PULP.

By Harold L. Watt, D.D.S., L.D.S., Ottawa, Ont.

Read before the Ottawa Dental Society.

The discovery of the devitalization of the dental pulp, its successful removal from its former occupied space, the canal rendered aseptic and filled with a non-irritating material, under aseptic conditions, assisted greatly in bringing about a great revolution in dental science.

The only remedy in the earlier days of an inflamed dental pulp was to extract the tooth, but to-day pulps in almost any pathological condition may be successfully treated, the canals filled, and allowed to continue on subserving nutrition.

My paper this evening, however, is not to deal with the treatment of pulps in any other pathological condition except those that necessitate devitalization.

At the outset it seems to me quite in order to ask the question, What is the dental pulp? The pulp is a tissue somewhat modified in structure, enclosed with unyielding osseous walls, which in health form its sure protection, and in disease its rigorous prison-house. It is composed of a gelatinous matrix, which is traversed by blood-vessels and nerves which divide and sub-divide through-

out. It is devoid of the lymphatic system, this duty supposed to be performed by the veins.

Its vessels are unlike those found elsewhere throughout the body, except in the brain being devoid of its muscular coat.

How is devitalization accomplished?

1. The most common method, by arsenic.
2. Cocaine pressure.
3. Under the influence of an anaesthetic.
4. By sprays of ethyl chloride.

5. In single rooted teeth sometimes, the pulps may be rapidly destroyed by the tooth on lingual and labial, notching sides with a stone, cut with excising forceps, and rapidly driving in an orange-wood stick, having it previously conformed to the shape of the canal. This, I will admit, is a heroic method but works out, where the case necessitates the immediate destruction of the pulp.

How are Pulps Destroyed by Arsenic?. The pulps become highly inflamed as a consequence of the irritation, and take on a condition known as hyperaemia; on account of the modified structure of the blood-vessels their coats are easily distended, the blood coming in at the apical foramen through the arteries, presses against the veins at this juncture prohibiting return of the blood, at least to a great extent blood stasis is produced and the pulp becomes devitalized by strangulation.

Cocaine Pressure. A very satisfactory method in most cases, but one, if resorting to this method, must be careful to diagnose the attending conditions correctly and treat them accordingly; for instance, if you have an inflamed pulp in a bicuspid or molar, taking the molar for example, one may find the lingual branch vital while the buccal branches may contain pus, or a case of dry gangrene filled with inert micro-organisms. Pressure anaesthesia in this condition would only add to the complexities of the case. However, if one desired to use the pressure, one might cement over the buccal branches and remove the lingual branch without further complication.

Before further commenting upon cocaine pressure, I will explain the method by which I secure the best results.

Remove all decay, at least as much as one can, with as little pain as possible to the patient; place in a portion of an $\frac{1}{8}$ grain cocaine hydrochlorate tablet in the cavity, which will partially dissolve, then add a quantity of solution adrenalin and chemically pure alcohol to thoroughly dissolve; take a piece of gutta-percha or unvulcanized rubber, and with the aid of a warm burnisher seal the edges of the rubber to prevent the escape of the liquid, and begin gradual pressure, which in most cases will produce insensibility. During the entire operation care should be taken not to force the cocain beyond the apex, as it may result in prolonged soreness. The sensibility may be tested from time to time during the operation.

In cavities extending to the gum margin on either lingual or distal surfaces, I find the ivory matrix and holder of assistance in forming the missing wall, thus facilitating the operation by pressure in preventing escape of the solution.

Cocaine pressure, however, has its difficulties, and these are met with in cases where one finds pulps ossified or pulp nodules or large deposit of secondary dentine, which cling to the sides of the canals. In these cases the pulps are usually removed with some pain to the patient, being the only method.

The General Anaesthetic method is O.K., but usually too expensive to the patient.

Sprays of Ethyl Chloride are successful to a large extent, but usually the shock is too great at the beginning and will not be tolerated by the patients.

Arsenious Acid to my mind is king of all methods; it is not very painful when associated with other medicinal agents, and when used with the fibre as placed upon the market, does not endanger the gum tissue when the cavity is near the cervical margin to the same extent as a devitalizing paste, the paste being so liable to escape when one endeavors to seal it in with temporary stopping. I have obtained the best results by first washing out the cavity with warm H_2O , then carefully dry out same with absorbent cotton, being careful during entire operation to prevent the saliva from penetrating it. This done, I allow a saturated solution of cocaine and acid carbolio to remain over the pulp for a few minutes, afterwards I place in a little more carbolio acid and follow with hot air syringe. I find this greatly diminishes the pain, and by continued drying of the cavity and careful excavating of the decay, I usually gain an exposure, and with the escape of the blood from the pulp I know the fight is over, blood pressure is relieved, the nerves therein soon become dormant—at least to a great extent—the patient is relieved and comfort is once more obtained. I positively at all times try to gain an exposure. This done, I apply

R. Opium.

Morphine ad. $2\frac{1}{2}\%$

With arsenic, creasote, oil of cloves, cassia added to fibre.

This being the formula placed upon the market by the S. S. White Company.

As I have said, the patient at this stage is immediately relieved, at least to a great extent, the pain is nothing in comparison to the moment when they first sought the services of the dentist; but to assure the patient of continued comfort until the pulp is devitalized, I think the most of us are inclined to overlook the point that we must not have 'pressure' on the newly or near-exposed pulp. Pressure is a pain-maker. To avoid the pressure, I find the best results by placing ordinary absorbent cotton over the devitalizing fibre and then smearing cement over the cotton.

You may say the patient will soon realize there is a weak point in the tooth and will protect it, so far as pressure is concerned, in the act of mastication, etc. That is true, but the un-called-for pain is usually caused by the pressure of the ingredient that retains the arsenic.

Speaking about the dangers of arsenic, I am informed by an expert chemist that the solubility of arsenic is as follows:

1 in 100 cold H_2O .

10 in 100 warm H_2O .

5 in 100 glycerine.

which goes to prove that it is not very soluble and is one point in its favor. I am willing to admit, that the anatomy of the tooth is such if it were very soluble there might be a probable chance to condemn it, as a solution might easily penetrate the tubuli, afflict the parodontal membrane and possibly result in necrosis of a large part of the maxilla; but not being very soluble and used in small quantities, I fail to see why it should be condemned.

While I have given you the old theory regarding death of pulp by strangulation, blood stasis produced, etc., I wish to state, to my mind the nerve tissue must come to its death by partial absorption of the arsenic. Believing this, I make it a practice to be careful in the amount used and thoroughly cleansing canal with warm water previous to using any medicinal agents such as H_2O_2 and others, the cleansing being done after the arsenic has been used and pulp withdrawn.

I thank you for your kind attention.

Discussion.

Dr. Oliver Martin opened the discussion. He quite agreed with the essayist as to the method in which the dental pulp came to its death as far as the theory of strangulation is concerned, and was not prepared to advance any theory as regards partial absorption of the arsenic, but brought out an important point in suggesting how readily the As_2O_3 is absorbed should it happen to make its escape upon the gum tissue. He said it seemed to him that arsenic was used for the destruction of the dental pulp on account of the violent irritation it produced. He claimed it would be impossible to continue his practice of dentistry should he be barred from the use of arsenic; and in passing he said, we are bound at some time to meet with the misfortune of having the arsenic escape, and when such took place he advocated the removal of dead tissue, and if the bone was involved to remove the affected part and treat the same with strong solutions of iodine. Regarding the absorption of arsenic, Dr. Martin claimed it impossible as it ceased with destruction of circulation.

Dr. S. Davidson asked Dr. Watt how long did he allow the arsenic to remain in the tooth.

Dr. Watt said it never pleased him to have a pulp return void of total sensibility or in a decomposed condition, and if possible

would have the patient return in from 2 to 5 days. He claimed if allowed to remain until decomposition set in it would require additional treatments, whereas if somewhat sensitive, a little cocaine and carbolic acid would allay the pain, and the dentist was sure of more complete extirpation of the pulp, as he advocated it was not the body of the pulp that was going to cause future trouble but the little (one-eighth) that remains down near the apex that is oftentimes difficult to remove.

Dr. S. Davidson agreed that to his experience the best results were obtained by opening into the pulp two or three days after the application, and Dr. Martin agreed with him in many cases where the arsenic had been allowed to remain for some time the pulp would return to quite a sensitive condition and afterwards very painful.

Dr. McElhenney, Jr., in dealing with the method of devitalization of pulp by cocaine, explained very nicely the method by which insensibility was produced by pressure hypodermically, and in conclusion thanked the essayist for the comments on the subject, and particularly for determining the fact that the dental pulp was void of lymphatics.

Dr. Milton Armstrong and Dr. Juvet agreed with the essayist that we must be careful in our diagnosis when one is resorting to devitalization of the pulp, particularly by cocaine in molars, as one might have a case where the buccal branches might be vital while the lingual might be filled with pyogenic organism; pressure anaesthesia in this condition would result far from favorable. The discussion toward the end became general as to subjects. A vote of thanks was moved in favor of Dr. Watt, and the meeting adjourned.

ELECTRICITY IN DENTISTRY.

By J. W. Leighton, Graduate of the School of Practical Science,
Toronto.

(Continued from February Number.)

CHAPTER 2—MAGNETISM.

The name magnet was given by the ancients to a certain ore found in Asia Minor, which possessed an attractive power for iron and steel, and the name has been retained to designate the peculiar property occasionally possessed by bodies (more especially iron and steel), whereby under certain conditions they attract or repel one another. This attractive power or force is called "Magnetism," and is governed by definite laws just as is electricity. Unlike electricity, however, it cannot be insulated, being similar in

that respect to the force exerted by gravity. Scientists have proven by experiment that the forces exerted by a magnet act in fixed directions, and in speaking of these forces have designated them as "lines of force." They have also demonstrated that these lines of force find less resistance in passing through iron than in passing through air or substances such as wood, brass, etc. Iron, then, appears to be the best conductor of magnetism and is exclusively used for that purpose. When a magnet is suspended by a cord, one end points towards the north and is therefore called the north pole, and the other end the south pole; and it is found that when two magnets are placed near each other, similar poles repel and unlike poles attract one another. This phenomena has been taken advantage of in converting electrical to mechanical power.

There exists a direct relationship between electricity and magnetism. A flow of current cannot exist without the production of magnetism. This relationship was first discovered by Hans Christian Oersted, of Copenhagen, in 1819, who demonstrated that a magnet tends to set itself at right angles to a wire carrying electric current; and it has been proven by experiment that lines of force encircle a wire carrying an electric current. A magnet may be produced by wrapping an insulated wire, carrying an electric current, round a piece of iron; and vice versa, if a wire be moved through a magnetic field (or made to cut lines of force), an electric current is set up in the wire if the circuit is completed. If this relationship did not exist between magnetism and electricity, each without the other would be of very little mechanical value, and it is this relationship which has made possible the converting of electrical to mechanical energy and vice versa. There are certain elementary laws which govern the process of inducing an electric current into a coil of wire by means of magnetism, and which may be stated in the following manner:

First. To induce currents in a conductor, there must be relative motion between the wire and the lines of force, and of such a kind as to alter the number of lines encircled by the wire.

Second. The increase in the number of magnetic lines of force encircled, generates an electro-motive force in the opposite sense to that induced by a decrease.

Third. The more powerful the magnetic field (or the more numerous the lines of force), the higher will be the electromotive force generated.

Fourth. The more rapid the motion, the greater will be the electromotive force.

Fifth. If instead of a single wire, a coil of wires is wound, the electromotive forces in each single turn are added together, hence very high electromotive forces can be obtained.

Sixth. As we have seen in Chapter I that resistance tends to reduce the current, the voltage may be increased or reduced by using wire of different resistances.

Seventh. As the induction of a current in a wire depends

upon the relative motion of conductors and magnetic lines, it is a mere question of mechanical convenience whether the magnetic lines be stationery while the copper wires move, or whether the conductor is fixed while the magnetic lines move.

Eighth. To the conductor which is generating the electromotive force by cutting the magnetic lines, it makes no difference what the origin of these lines is, whether from a permanent magnet of steel, or from an electro-magnet, that is, lines produced from a coil of wire carrying an electric current.

Ninth. To the moving conductor it makes no difference what the origin of the motion is, whether the motion be due to a steam engine, gas engine, or to hand driving.

In order to make clear the generation of electricity from mechanical power such as that produced from a steam engine, gas engine or water wheel (or turbine), we will first consider the action, or the relationship between magnetism and electricity in the dynamo or generator, and the general mechanism of such machines beginning with their various parts, and in order to show this clearly we will consider an ideal simple dynamo.

The simplest conceivable dynamo is that shown in Fig. 1, con-

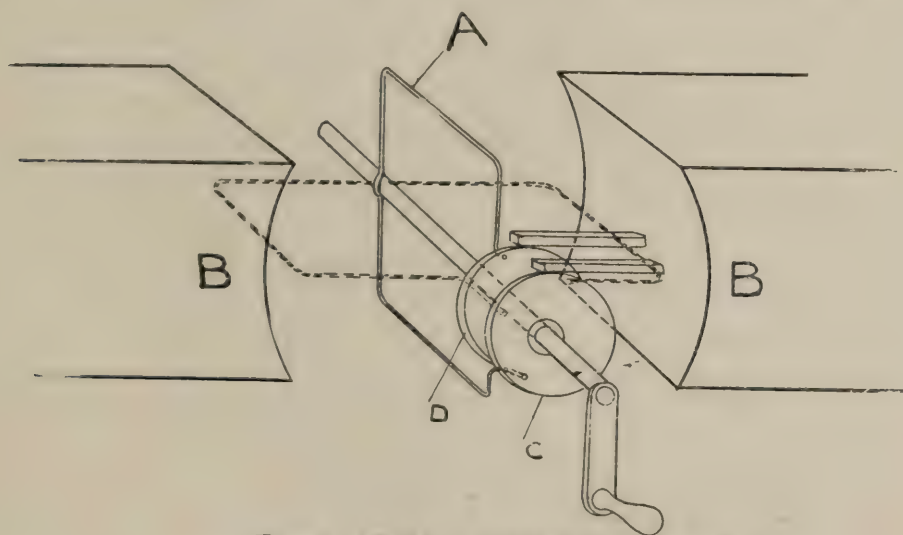


FIG. 1 IDEAL SIMPLE DYNAMO

sisting of a single rectangular loop of wire, "A," revolving in a simple and uniform magnetic field between the poles of a large magnet, "B." If the loop be placed at first in the vertical plane as shown, the number of lines that pass through it from right to left will be a maximum, and as it is turned into the horizontal position as shown by the dotted lines, the number diminishes to nothing, but on continuing the rotation the lines begin again to penetrate the loop on the opposite side, so that when the loop reaches the vertical position again there is a maximum number of lines passing through the coil which has been revolved through 180° . During the half revolution, therefore, currents will have been induced in the loop, and these currents will have been in

one direction in passing through the first 90° , and in the reverse direction in passing through the second 90° , owing to the fact that the coil was first encircling a gradually decreasing number of lines of force, and, second, a gradually increasing number of lines, so that an alternating current has been set up in the coil. This induction of current into the loop, as the loop is revolved and the intensity of the electromotive force generated, will depend upon the speed at which the loop revolves; so also will depend the number of times the current is reversed, and we will see, therefore, for a given machine, the number of alternations per minute depends upon the speed at which the generator is made to run. The current is led away from the machine by means of two spring brushes resting upon the rings "C" and "D" as alternating current. If, however, a direct current is required to be furnished, a special arrangement must be added.

To commute this alternating current into direct current in the external circuit, there must be applied a commutator consisting of two metal pieces, "A" and "B," insulated one from the other, upon which the brushes rest as shown in Fig. 2, each piece

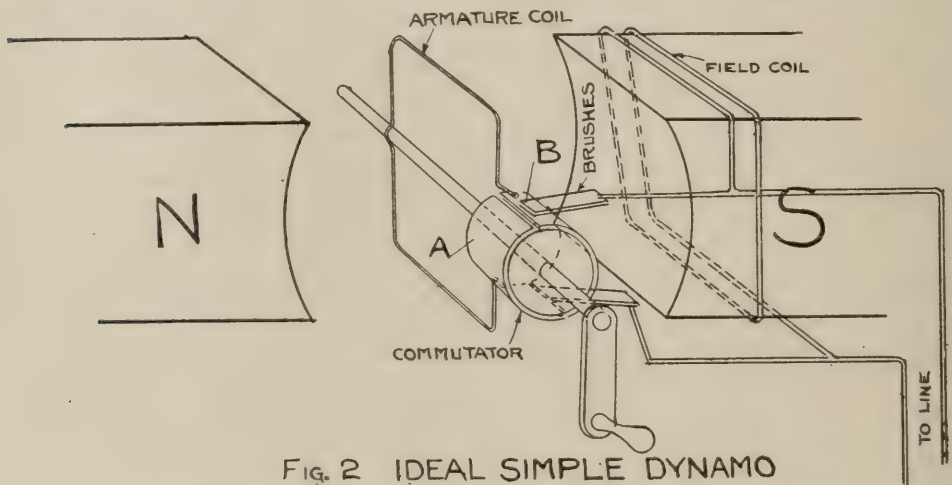


FIG. 2 IDEAL SIMPLE DYNAMO

being connected to one end of the loop. It is obvious that if the brushes are so set that one piece of the commutator slides out of contact and the other part slides into contact at the moment when the loop passes through the positions when the induction of the current reverses itself (or when no lines of force pass through the loop as in the horizontal position), the alternating current in the loop will be commuted into direct current in the outer circuit leading from the brushes.

The simple dynamo, as shown in Fig. 1, consists of two main portions; an armature which in revolving induces electromotive forces in the copper conductor wound upon it, and a field magnet, that is to say a magnet whose function is to provide a field of magnetic lines to be cut by the armature conductors as they revolve. In the commercial dynamo of to-day, the simple loop of wire has been superseded by an armature made up of many coils of wire

having many turns in each coil, and in order to facilitate the conducting of the lines of force across the space between the poles of the magnet, this wire is wound upon an iron core, and the simple commutator of two pieces, on account of the increased number of coils of the armature, has been correspondingly increased to a large number of segments. In direct current machines the magnetic field is produced by leading part of the current generated from the brushes through a coil of wire wound around the pole pieces of the field magnet, as shown in Fig. 2. For alternating current machines, since an unvarying magnetic field is only produced by direct current, outside sources are used to supply current for the field. In almost all direct current machines the field magnets stand still while the armature is the portion which rotates, but in alternating current machines there are many patterns in which the armature stands still and the field magnets rotate, and it is not the question of rotation which decides which is properly called "field" and which "armature." The name of field is properly given to that part which, whether stationary or revolving, maintains its function. The field is a comparatively simple electro-magnet, while the armature is a more complex structure, and for different uses has become very complex in its windings, so that a discussion of the design of the latest and most approved dynamo is here unnecessary as it would tend to confuse rather than assist the reader in understanding the generation of electricity.

In commercial use a dynamo is driven by being belted to the common forms of motive power such as the steam engine, gas engine or water turbine, or, in the case of larger machines, the armature of the generator is fastened directly upon the shafts of such motive powers. In the case of some of the generators installed at Niagara Falls, the vertical water turbine is placed at the bottom of the tunnel, the shaft extending to the power house above, upon the end of which the rotor of the generator is fastened.

CHAPTER 3.

Transmission of Electricity.

A current passing through a wire produces heat, and as heat is a form of energy or power, the heat so produced is power wasted when supplied to transmission lines. By transmission lines is meant the wires that conduct the electric current from the dynamo to the point of consumption. We have seen in Chap. 1 that heat is proportional to the square of the current multiplied by the resistance, so that it is most important to keep the size of the current as small as possible. In order to do this and at the same time transmit the quantity of power required, it is evident that the voltage must be high, since $\text{current} \times \text{volts} = \text{power}$. There is also the factor of the initial cost of a transmission line in the size of the wire used. If heavy currents are used, large wires are necessary, whereas with low currents and high voltages, small

sized wires can be used. It has therefore become modern practice to transmit where possible, at extremely high voltages which, in the case of the Hydro-Electric transmission system, is 110,000 volts. The feasibility of producing such high voltages in systems capable of carrying heavy currents is made possible only through the ability of transforming alternating current by other means than in revolving machines where the consideration of insulation against such high voltages is impracticable. The method used in transforming alternating current is in taking advantage of the inductive effect of alternating current.

In the preceding chapter it was shown that a coil cutting lines of force induces the current into that coil, and vice versa if lines of force are made to pass through a coil, first in one direction and then in another, a current will be induced in the coil. Consider the case of an ideal simple transformer as shown in Fig. 3. If an

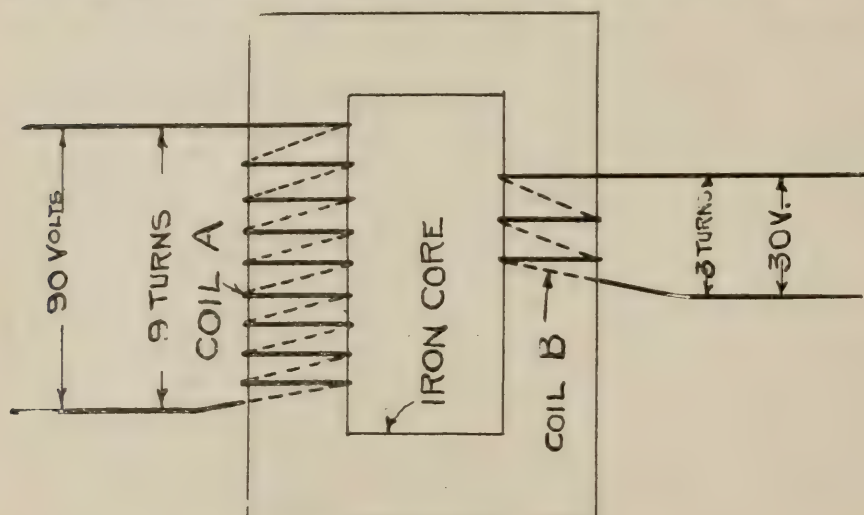


FIG. 3. IDEAL SIMPLE TRANSFORMER.

alternating current is applied or passes through coil "A," lines of force are sent through the iron core, first in one direction and then in the other with the reversals of the current. These lines of force will cause an electric current to be induced in coil "B," and the size of the voltage in coil "B" will be to the size of the voltage in coil "A" in proportion as the number of turns in coil "B" is to the number of turns in coil "A." It is therefore feasible to construct transformers to transform high voltages, and as these stationary transformers require no attendance while in operation they may be stationed any place in a distributing system allowing the high voltage to be carried to the very point of consumption. It is obvious that as direct current does not produce a changing magnetism, direct current voltages cannot be altered in this way, and the only means of transforming direct current is through revolving machines which must be located in central stations, preventing distribution at higher voltages than those required by the

consumer. It is therefore evident that with the increase in the general use of electricity, direct current systems will gradually be done away with and alternating substituted. In certain localities where large amounts have been invested in direct current apparatus the change will be more gradual. The great advancement, however, in the design and construction of more up-to-date apparatus will hasten the time when this change will take place, and particularly so where there are competitive systems, in that the more up-to-date machinery will be purchased.

The Hydro-Electric Transmission System.

The system which the Ontario Government is hastening to a completion is probably the nearest approach to an ideal electric-distributing system. The tremendous amount of natural energy being expended by the flow of water over Niagara Falls has been converted for domestic uses by several power companies, and it only remained to inaugurate a system to convey this energy to the neighboring towns and cities. By administration and financial assistance, a compact has been entered into with the Ontario Power Co. to supply an amount up to 60,000 horse power. The Ontario Power Co.'s plant is situated on the Canadian side of the river just below the falls. The generating station stands below

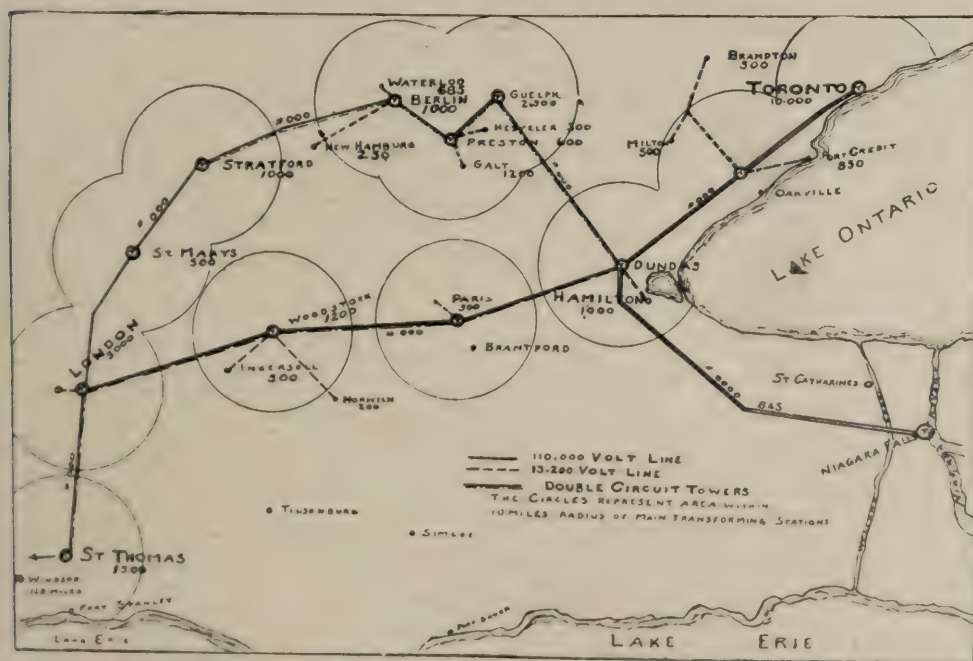


FIG. 4. AREA SERVED BY ONTARIO GOVERNMENT TRANSMISSION SYSTEM

the rocky cliff almost on a level with the river. The water used for power generation is taken from the river at a point some half a mile above the falls and carried by an 18-foot circular metal conducting tube from this point along the bank of the river to the generating station. This tube supplies sufficient water for seven large water turbines, aggregating 80,000 horse power. The inten-

tion is to triple this capacity by adding two more tubes. Just over the hill, back of the power house, the Hydro-Electric Commission is building a large transforming station with a capacity of 60,000 h.p. when completed. The Ontario Power Company is to deliver at this point electric energy at 12,000 volts. The function of the transforming station, will be to step this voltage up to 110,000 volts ready for distribution. The territory that will be most benefited in the immediate future is shown by the map, Fig. 4. It is the intention to supply the suburban territory around the central stations as shown by the numerous circles. The figures placed below the names of towns and cities indicate the minimum number of horse power for which the different municipalities are required to guarantee payment, which at the present time is about 30,000 h.p. It is proposed to run a third transmission line from Dundas to St. Thomas, serving the district including Hagersville, Waterford, Simcoe, Tillsonburg, Aylmer, etc. The total length of line being installed at present is about 290 miles and will be composed of aluminum cables. Double transmission lines will be installed consisting of two sets of three cables each, from Niagara Falls to Dundas and from Dundas to Toronto. The transmission line follows a course as the crow flies except where it has been deemed advisable to diverge in order to follow a highway or to take in stations or villages. Every conceivable means has been adopted to prevent interruptions by electric storms, and, where possible, the transmission lines have been looped in a circle so that the current can be supplied from either side should an interruption occur. Metal towers are being used throughout, and are spaced about ten to the mile, making in all about 3,000 towers. Lightning troubles are guarded against by the erection of parallel ground wires which are placed on the upper side of the tower arms, and in this position they form a sort of canopy over the transmission cables.

The Hydro-Electric will build sub-stations at each municipality to transform the voltage to 13,200 volts by means of step-down transformers. It is the intention of some municipalities to transmit through manufacturing districts at 13,200 volts, and on power lines to transform to 550 volts at the point of consumption. On lighting circuits the municipalities will step down in sub-stations from 13,200 to 2,200 volts, and will distribute at that voltage throughout the city, and by means of transformers located on the poles outside the buildings, the voltage is stepped down to 110 volts.

It is clear that by the adoption of the foregoing system, the most economical and efficient system of transmission has been adopted. There is perhaps no country in the world where more up-to-date systems are installed than in Canada, and the success of this government-assisted project will doubtless lead to the inauguration of similar enterprises throughout the Dominion, which is dotted everywhere with water power ready to be harnessed.

In the next issue, the systems of office wiring, using an ideal dental office as an illustration, will be considered.

TRADE METHODS IN DENTAL PRACTICE.

W. C. Gowan, Peterboro.

Will the rank and file of Ontario Dentists now in practice ever learn that they are not selling metals or doing piece-work?

Do these men believe that to furnish dental goods and mechanically apply the same within the mouth is the whole or even the chief duty of the dentist—the only part of his service to be mentioned as having value, the only thing to be acknowledged as value received, by the patient? If men do not so believe then why do they state their charges for “fillings,” “crowns,” “teeth,” as so many articles of merchandise, without any claim, stated or implied, for examination, diagnosis, exercise of judgment and skill possible only to those possessing the special and expensive education of the dentist? In short, why do they make no claim for professional services?

We do not here refer to the incompetent or to the dishonest who wilfully keep shop to impose on the ignorant. We refer now to fairly competent, honest men, willing and able to do a great deal for the good of their patients, but for some reason unable to appreciate the difference between a profession and a trade.

Now, in the language of these men, the “price” of a “filling,” whether it be fifty dollars or fifty cents, still seems to the patient a high charge for a small bit of merchandise. The “price” of a “crown” at ten dollars looks like robbery to the woman who buys the popular spring hat a foot and a half wide for fifteen dollars. And her conclusions are logically founded upon the data presented by such a dentist.

Ostensibly, at least, the jeweller makes no charge for finding out what his customer wants to buy. This is paralleled by the dentist who announces or makes “no charge for examination.” The expectation of each being to make good in the prospective sale. But do the jeweller and the dentist fare equally well in their respective sales? The jeweller, by a few minutes’ attention (something like visiting), gets good profit on a large gold ring at six dollars, which looks and weighs ten times the gold in the three little fillings for which the dentist works five hours and asks six dollars. Thus, by using trade methods instead of professional, the dentist gets miserable pay which the patient thinks is too much or at least so high that she may try some other dentist next time.

This estimate of a value of a dentist’s services prevails at the present time in communities where dentistry has been represented or misrepresented for forty years. There is every reason to believe that the same estimate will prevail so long as dentists misrepresent the profession and the nature of its services to humanity.

Those who for want of thought or education, or merely by habit, ignore the professional nature of their calling and in their words and dealings present themselves as mere mechanics or tradesmen, need not expect any betterment of their present condition until they wholly change their conduct in professional respects. And let no man believe that in lieu of this change he can better himself by legislation, labor unionism or the so-called education of the public.

We have colleges, academic degrees, high matriculation requirements and have had these for years, why, then, the unprofessional habits and attitude of so many well-meaning men? How or by whose example were these habits acquired? And is there a way to shield present and future dental students from the acquisition of these habits and attitude towards their calling?

Why not open the college infirmary for the spring and early summer months to provide proper clinical and professional instruction for students and to promote that dental education of the public for which the infirmary is the best fitted and most potent institution we have?

Is it not worth while to provide, so far at least as future graduates are concerned, against the spectacle of a "doctor" selling little wares called "fillings" at "prices"?

TOOTH BLEACHING.

By H. J. Henderson, D.M.D.

Read before the Victoria Dental Society, February 10th, 1910.

To classify discolored teeth, we divide them into three classes.

1st. When the discoloration is due to the death of the pulp without a direct exposure. This is brought about by traumatic causes such as blows, thermal changes, the biting of hard substances, strenuous strain on a tooth as in the case of regulating.

The second class is where the tooth is discolored after an exposure is made.

Class three—Metallic discoloration such as from amalgam fillings.

To prepare the Tooth for the Bleaching Operation.—Remove all septic material from the pulp chamber and canal. Always adjust the rubber dam leaving only the tooth to be bleached protruding and cover the remainder of the face with a towel so as to protect from sputtering.

The agents used in bleaching are very irritable to the soft skin. The canal fillings should always be of gutta percha and should fill half the canal.

If there are any fillings, especially those of metal, they should

be removed, as the agents would act on the metal and cause a permanent staining of the tooth structure.

After the cavity is cleaned as well as possible by mechanical means, the tooth should then be washed with a weak solution of aqua ammonia or a solution of borax and warm water. This will remove all fatty substances, which would otherwise effect the action of the bleachers.

Dry the tooth well with hot air and it is now ready for any of the various agents.

The first successful bleaching operation was by Dr. James Truman. He used the calcium hypochlorite or ordinary chlorinated lime. His method was to pack the dry powder into the cavity and apply an acid; any acid will effect the liberation of chlorine, which has a great affinity for hydrogen and leaves the oxygen free.

Never use instruments of metal as the chlorine will act on them forming the soluble chlorides, which, if carried into the tooth structure, will permanently stain. The instruments should be made of bone, vulcanite or agate; aluminum has no effect on the discoloration and instruments may be made to suit the operator out of aluminum wire or plate. To facilitate the placing of the dry powder into the cavity, a quill is filled with the powder and by means of an orange wood stick forced into the cavity.

The acid is applied with a glass pippette. When the tooth is bleached sufficiently, about 30 minutes, it is then thoroughly washed with hot water, as most cases of failure are due to slighted cleansing. The canal may then be filled with paraffine heated into the tooth structure and a temporary filling of zinc oxychlorid is inserted. The final filling should be postponed for about four months or when the tooth shows no sign of re-discoloring.

Bleaching by pyrozone has had great favor with some operators. Pyrozone is a 25% solution of hydrogen peroxide. The technique is the same as before. The solution is placed in the cavity on a pledgit of cotton and warm air applied to facilitate the breaking up. If the bleaching is obstinate, a small quantity may be sealed in and allowed to remain in for a day. Care should be taken not to seal in too much, as it has been known to split the tooth. Pyrozone should be handled with care, as it is very explosive. A towel should be wrapped around the bottle when handling, as often the heat of the hand is enough to cause an explosion.

The Sodium Dioxide Method.—Sodium dioxide appears in yellowish white powder. It must be tightly corked, as it is very hygroscopic. Sodium dioxide exposed to the atmosphere for twenty-four hours will absorb nearly its own weight in water. For bleaching purposes we make a saturated solution in small quantities as required, by adding the powder slowly to about an ounce of distilled water. The beaker should be kept cool by means of a wet towel. The powder is added until the solution as-

sumes a semi-opaque appearance indicating the saturation point. On removal of the towel, the solution will appear straw-colored. This is then applied to the cavity on pledgits of asbestos fibre, as the sodium dioxide acts on the cotton changing it to a sticky, pasty mass that is difficult to remove and interferes with the action of the solution.

After the dentin is saturated with the above-mentioned solution a 10% solution of sulphuric acid is added. Effervescence will be noted. Repeat the operation until the tooth is restored to its normal color and treat as before.

There are many different agents that may be used for bleaching but those mentioned have been most successful in most cases.

PYORRHOEA ALVEOLARIS.

BY J. D. PATTERSON, D.D.S., KANSAS CITY, MO.

Read before the Otolongological Society of Western Pennsylvania at Pittsburg, October 13, 1908.

Upon your invitation to speak upon this subject to-day I have responded because I have something to say to you, and it is, that I am daily becoming more and more convinced that many in our profession are radically in error because they have so little confidence in successful treatment of pyorrhœa alveolaris, that such treatment is not attempted. There are two causes for this: First—Successful treatment demands unusual patience and attention to detail, and, Second—Because so many believe in the teaching that the disease is caused by faulty metabolism—a sequence of systemic conditions due to nutritional disturbances.

The lack of interest in and the neglect of treatment, I find, is very generally due to the second statement, and is not due to the shirking of a trying and exhaustive operative procedure, for ethical men would not often avoid difficult tasks if they knew a patient's comfort would be assured. But the neglect, when neglect is found, can usually be traced to the belief that the disease cannot be controlled without improvement or cure of the systemic balance; and they, therefore, knowing that faulty metabolism in its progressed stage (when it may be supposed to originate pyorrhœa) is seldom cured, or even much alleviated, they accordingly are loathe to undertake the task.

This condition of things in which, to my mind, we find the greatest deflection from professional duty at present known to the dental profession, has been on account of misleading or false teaching by those who are considered authority, and these teachers are *particeps criminis* in the loss of thousands of dental organs which would have been saved and ministered to comfort and beauty. if we had not been taught that little could be done for pyorrhœa, as its cause was systemic. The very day I commenced writing this

paper, an intelligent young man of 29 years left his regular dentist and came for my advice because his gums would "bleed in the act of brushing." I found degeneration of gum tissue well established. He said his dentist had told him little could be done for pyorrhœa, and that he probably had the uric acid diathesis. Again and again have you and I listened to similar statements. On account of false teaching, dentists all over our broad country—good operators, too—are telling their patients, "Nothing can be done;" "Eventually you will lose your teeth;" "It is constitutional," etc.

These statements absolutely and positively have been proved to be untrue by many operators who in thousands of cases have proved that if all local irritations are removed and sanitation established, cure or perfect comfort comes, whatever phase of faulty metabolism exists. And that in every case, if treated ere the tissues become so hopelessly involved that the teeth are nearly exfoliated, improvement comes rapidly and positively.

Who are the teachers who are responsible for the incorrect beliefs so prevalent? Chiefly, they are found in this State of Pennsylvania. Consciously or unconsciously, they have, in my opinion, invited criticism of the profession because they have disseminated beliefs that will not stand the test. They have magnified the factor of systemic causation in pyorrhœa until they have tied the hands of those willing to strive against the inroads of local irritation, but who were half-hearted when told that instrumentation was only one of the factors in treatment and they finally become members of the "Nothing can be done" ranks.

The teaching leading to the results I have referred to, still goes on, and members of our profession who gave first stimulus to the unfortunate tendency and who were Pennsylvanians, are followed by others, still chiefly of the "Keystone State."

In the August issue of the Dental Cosmos is an article by the editor, Edw. C. Kirk, D.D.S., Sc.D., upon "The Constitutional Elements of Certain Dental Disorders," and to the mind of the writer, the argument will continue to augment the ranks of those disbelieving in the local treatment of pyorrhœa alveolaris.

The writing referred to is exhaustive and ingenious and for the most part scientific. There are many propositions, however, that I think erroneous, and statements are made regarding what is accepted by scientists as proven in the field of pathology, which, I think, are not proven at all.

The author starts out by saying:

"The whole domain of pathology, and especially of etiology, has been undergoing a process of evolution in which the point of view and correspondingly the point of attack, is being rapidly changed from the uncertain position of empiricism to the secure basis of certainty." "*The study of dental disorders from the restricted limitations of their purely local manifestations has done but little for their rational therapeutics and less for their successful prevention (?)*."

"With all that dentistry has accomplished we are, as yet, lacking in knowledge as to the causes of susceptibility to any of the characteristic and well recognized disorders, or of conditions which secure immunity from them."

This is, indeed, a sad commentary upon the work of dental investigators. It has generally been supposed that at least something along the lines of etiology, pathology, prophylaxis and prevention has been quite well established, and that this had been accomplished not wholly by *"The study of dental disorders from the restricted limitations of purely local manifestations."*

What of the works of Magitot, Hugenschmidt, Gallipe, Mournier and others, in France?

What of the work of Miller and others, in Germany?

What of the work of Goadby, Michaels, J. Sims Wallace, Hunter, Leith, Tomes, Salter, Hopewell Smith, Lauder Brunton, and Siberth, in England?

What of the work of our own countrymen, Black, J. W. White, Cryer, Brubaker, Williams, Kingsley, Garrethson, Talbot, Edw. C. Kirk, and a host of others?

Can it be asserted that they studied dental disorders *"from the restricted limitations of their purely local manifestations" alone?* And is it possible that they have done *"little for their rational therapeutics and less for their successful prevention?"* I think not. The charge that, heretofore, investigations have been *"from the uncertain basis of empiricism"* can scarcely be justified; nor do we believe that now it is, as Dr. Kirk claims, upon a *"secure basis of certainty."* Indeed, in the words quoted, he inconsistently admits *"that we are, as yet, lacking in knowledge as to the causes of susceptibility in any of the well recognized dental disorders."* The statement is not, we believe, capable of proof, and is only again quoted to point to the apparent inconsistency of Dr. Kirk's position.

Another statement in the introduction of Dr. Kirk's article says:

"I think we are justified in considering certain dental disorders more particularly that group of destructive inflammatory processes, which we designate collectively as pyorrhœa alveolaris, interstitial gingivitis, Riggs' disease, etc.—diseases that are manifested in individuals below the normal standard of health." (Italics ours).

This is the assumption upon which the argument of the article is chiefly based and to which we say *"not proven."*

In a paper upon pyorrhœa, at the last meeting of the Kansas Dental Association, the writer made the following statement:

"My continued clinical experience leads me again to say what I have often stated, that the large majority of those who appeal to me for relief from pyorrhœa are remarkably healthy and vigorous" and careful study and observation brings me to the belief that "No greater a per cent. of patients suffering from pyorrhœa have systemic predisposition than an equal number who come for the ordinary operations of filling teth, and who have no pyorrhœa."

Quoting still from my paper at the Kansas meeting, I said:

"In 1884 I read my first paper upon this subject before the Missouri State Dental Association. In 1885 the next effort was before the American Dental Association at Minneapolis, upon "*The Catarrhal Nature of Pyorrhoea Alveolaris*."

At various times since then I have written and spoken upon the subject. During all the intervening years, especially since claims for the systemic origin of the disease have been brought out, I have carefully, and without bias, sought for the cause of pyorrhœa and have kept a record of cases to determine, if possible, in a clinical way, whether systemic predisposing conditions were generally present, and what those systemic conditions were. I found that in an overwhelming majority of cases there could not be found a trace of systemic predisposing conditions which so many authors and writers claim to be present. After promising to read this paper, I have again tabulated my cases of pyorrhœa treated during a period from January, 1906, to October, 1907, with the following result:

Total number treated, 95. These were divided as follows:

WOMEN.

Age over 32.....	46
Age 20 to 30.....	17
Age under 20.....	1

MEN.

Age over 32.....	26
Age 20 to 30.....	2

In the total of ninety-five cases the most careful observation, inquiry and history of at least ninety per cent. of them established the fact that only eleven were sufferers from any predisposing condition. In every case where suspicion of predisposition existed, most careful inquiry was prosecuted, and in not a few the family physician was consulted. In five cases the patients voluntarily stated that they were subjects of uric acid poisoning, rheumatism and gout.

Since commencing the writing of this paper, I have gone over my record of new cases since January, 1908. They number 60, of which 52 *have no discoverable predisposition*. These records have not been made haphazard—have not been made without careful, unprejudiced investigation.

My opinion is that of the entire number of operators who have like myself, depended upon success from surgical procedures and who have rigidly determined to give the systemic predispositions all the study and consideration justified by clinical experience, and at the same time to severely test the sufficiency of local treatment, have come to the same conclusion.

I am not alone in believing that Dr. Kirk's statement that persons suffering from pyorrhœa "*are below the normal state of*

health'' is incorrect. The great majority do not agree with such a statement because experience has proven its fallacy.

Regarding systemic predispositions and their influence in pyorrhœa, I have this to say:

If predispositions exist, *see to their correction*. That is surgical sense whether in pyorrhœa, catarrh or any similar condition whose exciting cause is local irritation. No inflammation born of irritation in any part of the body can but be affected by prejudiced nutrition if it exists, and the measure of such influence must ever be in proportion to the amount of predisposition—but given these predisposing influences, there is, I am firmly convinced, no inception of gingival disorder without local irritation in one form or another. When the initial lesion is established, if the systemic condition is depraved, the prognosis is unfavorable, and greater care, if possible, must be instituted. This is true in all bodily lesions, be the original irritant mechanical, chemical, septic or of constitutional origin.

Following along the line of argument referred to, and claiming pyorrhœa to be caused by the irritating end products of faulty metabolism, and never once referring to local causes or local treatment, Dr. Kirk, in the article named, says:—(p. 811).

“The imperfectly oxidized products of nitrogenous metabolism are known to have a predilection for the articular tissues, and the dental ligament, the pericemental membrane, does not escape. Deposition of the irritative suboxidized waste products of nitrogenous metabolism are deposited in this membrane, causing irritations of various degrees, even necrobiosis, and establishing local points of diminished resistance, which later become foci of infection through their invasion by pus-producing bacteria; in short, we have a form of alveolar pyorrhœa which is a terminal infection to a chronic general nutritional disorder, arthritism.”

So we are in this presentation called to believe that pyorrhœa may have its inception in the peridental membrane without precedent lesion of a tooth's investment—a proposition so wholly at variance with our belief that *we are at war with the statement*. We have had sent to us scores of cases, supposed to be without local irritation, and not one have we yet seen where the local irritant was not palpable and where relief was not rapidly given and was permanent so long as perfect sanitation ensued.

Dr. Kirk premises that the pericemental membrane is similar to the ligamentous territory invaded by waste end products as in arthritism; when, according to our study, the pericemental membrane is not analagous to the tissue of the joints where arthritic deposits are found. He calls the pericemental membrane the “dental ligament.” We question the statement. The pericemental membrane differs from the usual ligament binding bones in juxtaposition at the joints. Such ligament is of connective tissue and easily penetrable, while the pericemental membrane is, according to

the American Text-Book of Operative Dentistry, "thickly studded with cementoblasts, osteoblasts and osteoclasts." It is in no wise analagous to ordinary ligamentous tissue, nor do we find any authority in text-books on Anatomy, Dentistry, Histology, or in dictionaries for the use of the term "Dental Ligament" in referring to the peridental tissue.

Again—we see in the dissecting room, in the green subject that the peridental membrane and its union with the alveolar process, cementum and tooth, presents a solid impenetrable surface as compared to the joint ligaments with their synovial fluid. In the one case there is a place where waste end products are given an opportunity to deposit, and in the peridental membrane no such space is seen—at least not until a precedent lesion has existed.

Time does not allow us to notice the paper of Dr. Kirk at greater length and we leave the brief review with two statements.

Instead of it being true that pyorrhœa is "*manifested in individuals below the normal standard of health,*" clinical experience proves that the *great majority who suffer from this disease are strong and vital.*

We do not have to invade the field of metaphysics to find a good reason for this; for we know that the robust and strong, who have scarcely "*had a sick day,*" are the ones notoriously careless of their person—they laugh at the ordinary health precautions—their mouths are uncared for, so, as pyorrhœa is a filth disease, they suffer.

On the contrary, members of the human family suffering from systemic or specific physical conditions (unless it may be in the lowest classes), are usually monomaniacs upon hygiene and sanitation, no precaution to prevent undue infection but what is scrupulously observed, and the mouth and teeth, with other parts of the body, receive the benefit.

The second statement is that articles in the line of that of Dr. Kirk, tabooing or minimizing the influence of local irritation in the cause of pyorrhœa or the benefits of local without systemic treatment, gives to the indolent, and the honestly wavering, a welcome excuse to fold their hands and do nothing when sufferers ask for relief. If these writers, while making investigations, would advise that, in the meantime, while research is being prosecuted into new disease causes, each member of the profession should not fail to institute local measures so well known to be successful; then no one would dare criticize—but the whole intent evidently is to discredit local causes for etiology, and to force the profession and people to the belief that the disease is of obscure origin and demanding intricate therapeutical combinations ere success will come in treatment.

—"Cosmos."

Selections

THE INTRODUCTORY EDITORIAL OF CANADIAN DENTAL JOURNALISM.

By G. A. Beers.

It is always gratifying to find the particular calling at which we labour keeping pace in the general advancement of a young country. That Dentistry in Canada has taken a vigorous onward movement is evidenced by the success attending the action of the members of the profession in Ontario, and by the necessity which has called into existence, as a sequence of this action a home journal to support and extend the progressive liberal and reputable principles of dental science, art and education in and throughout the Dominion. The present is a period of transition from the unsociable to the associative; from the comparatively stagnant to the progressive. New life has been infused into our speciality, and a more general readiness to respond to any effort towards improvement and elevation pervades the professional mind. Pinning our faith to the happy results of this change and believing it an opportune time to lay the foundation of a Canadian dental literature, we offer the "Canadian Journal of Dental Science" as the literary repository and representative organ of Canadian dentistry.

No foreign journal can be expected to supply the wants, or adequately represent the interests of Canadian practitioners; and offering to meet this deficiency this Journal claims their support. The position of a people without a press cannot be more lamentable than that of a profession such as ours without a medium of communication for its members. We trust this Journal will succeed in drawing out a literary talent, and a fund of practical information, which must naturally be dominant in a country which has heretofore never had a home inducement for publication.

It is the inevitable fatality of new experiments in any sphere to be met with some opposition from parties who suspect and distrust their motives, and from others who systematically decry any innovation. We anticipate in the outset of this Journal a share of discouragement; but confidently believe that the members of the Canadian profession, with a few exceptions, will sustain it for their own credit and for the credit of the country and the profession it represents. If numerous letters, in answer to the prospectus issued, received from all parts of the Dominion, are at all significant, we feel confident the Journal will fill a gap and merit hearty support.

The C. J. of D. S. will be independent of any section or clique, though devoted to the interests of any progressive party because it is progressive. It will aim to improve and elevate the status

of the profession in Canada, instruct and invite its members, and in honest effort endeavour to do for Canadian dentistry what has been achieved for the profession of England and the United States mainly through the instrumentality of periodicals of a similar kind.

The original project to issue quarterly was changed to monthly by request of many friends in Ontario and Quebec. The importance of the movement in the former province, and the necessity of fostering an interest in the principles of the Association demand a more frequent issue than four times a year.

Among the list of friends outside of Canada who have given the Journal assurance of literary aid when possible, we have pleasure in naming Mr. Edwin Saunders, Dentist to Her Majesty the Queen; Mr. Waite, of Liverpool, and other well-known English dentists. Generous offers of assistance in the same way came from Drs. McQuillen, W. H. Atkinson, A. S. Pigott, C. A. Kingsbury, and others in the United States. Neither editors nor subscribers can be insensible to such liberal kindness from members of the profession whose names are as household words.

To confreres in Canada who have so far aided this undertaking we return our sincere thanks and hope before long to add the name of every dentist in the Dominion. That a home journal can do estimable good no one can deny, and that it is now an absolute necessity nearly everyone will admit. There is no reason, then, why every individual dentist in Canada should not take an active interest in its success. With them lies the fate of our young Journal. Let them prove that there is sufficient enterprise in the country to support it.

W. G. B.

Proceedings of Dental Societies

PROCEEDINGS OF THE ONTARIO DENTAL SOCIETY.

The proceedings of the Ontario Dental Society for 1909 have just been mailed to every member of the Society. It is a volume of one hundred and fifty pages, containing the names of all the presidents and honorary members, the officers, the names of the members present at the last annual meeting, the proceedings, the papers and discussions, and the addresses delivered at the complimentary banquet given to Dr. J. B. Willmott at the King Edward hotel. Besides this, there is a full page cut of the president, Dr. W. J. Bruce and Dr. J. B. Willmott, and the window placed in the new college.

This volume is especially valuable because it contains a full report of the complimentary banquet to Dr. Willmott.

By an arrangement existing between the Dominion Dental Journal and the Ontario Dental Society the copy of the proceedings of the Society is given to the Journal, which in turn publishes a bound volume for each member. For various reasons the volumes of the past few years have not been sent out. There are several hundreds at the publishers' office, while there are many more at the Dental College and the printing office. There are also large bundles of the proceedings of the Canadian Dental Association at the office of the publishers. By some accident the names of those in attendance at the first and second meetings of the Canadian Dental Association was lost, and also those of one or two years of the Ontario Dental Society. At the next meeting of the two societies we would suggest that these volumes be distributed among the members, as nearly as they can be found out. The books are well printed and neatly bound and stand as a permanent record of the societies.

THE ALUMNI ASSOCIATION.

The annual clinic of the Alumni Association of the Kansas City Dental College will be held at the new college buildings Friday and Saturday, Feb. 18, 19, 1910.

While this clinic is under the auspices of the Alumni Association, we cordially invite the co-operation of all ethical dentists.

The programme will consist of chair and table clinics of unusual merit where best methods and latest appliances will be demonstrated. Come and spend these two days with us.

You show us and we will show you.

A. E. GOSSARD, Pres.

A. C. GARDNER, Sec'y.

ELGIN DENTAL SOCIETY.

Report by Dr. H. H. Way.

At the regular meeting of the Elgin Dental Society, held on the evening of the 11th inst., Dr. W. A. Piper, of London, gave a most interesting clinic on the casting of aluminum plates by the hand centrifugal method, and every local member was out, save one.

Dr. Piper prefaced his demonstration by an easy, off-handed address, himself and the members socially seated about a table, upon which was arranged specimens of the work in the several stages, save the mould itself, which was being heated up ready for the final melting and casting.

The model for casting upon is composed of plaster and silix, in about equal proportions, and therefore is quite friable and needs to be handled with some care. Upon this is placed the wax plate, having a raised rim of an eighth of an inch and bevelled inward for securing the rubber attachment. This rim expedites the last finishing up of the work as well as making a much neater looking denture.

The arrangement of the three sprews is made by waxing first the larger-sized iron wire, which is, say, $3/16''$ in diameter, just back of location of the central incisors as at Fig. 1. This provides for the running in inlet. The two smaller ones are likewise at-

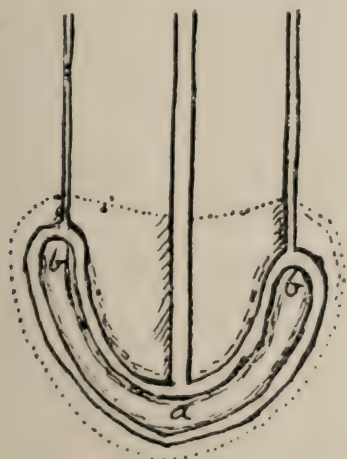


Fig. 1

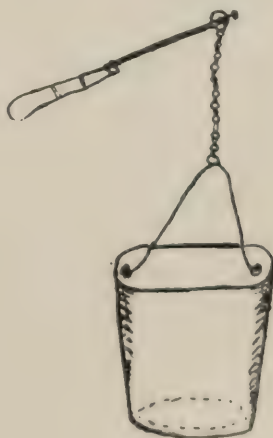


Fig. 2

tached at b b, and provide for the vents at the time of casting. These wires must, of course, be well oiled or waxed before investing.

Dr. Piper has a simple iron "cow-bell" flask provided with a loose bottom, somewhat as shown at Fig. 2, and to which is easily attached a wire bail and chain swivelled to a strong handpiece. Just before investing special care must be taken as for the perfect adaptation of the wax plate to the model, for the least open space

between will admit the thin investing material and so perhaps ruin the casting itself, and this is the very last opportunity of making sure that all is well. It is therefore well to now go carefully over both wax and adjoining portions of model with camel-hair brush with a thin plaster batter as against air bubbles and to hold the parts together. The investment is composed of plaster and silex mixed to the thickness of cream and about half filling Fig. 2, then lower Fig. 1 into it; spews up, being mindful not to go too close to the bottom. The flask having been previously placed onto a loose board, this latter is now gently jarred by one hand to raise any bubbles and settle the whole in place.

After some few minutes cut out a countersunk opening about the centre wire; and later, the three wires are to be removed. When the wax may be either boiled out or dry heated and tilted out, as preferred, the balance will readily disappear in the after heating. The flask is next placed, flat side down, upon a broad gas burner and completely enveloped in flame and heated till quite read, and turned over and heated as before. It is now set upright on the same heating base, the ingot of metal put into position, and now the bellows blowpipe also brought to bear thereon, and follow up this combined heating until thoroughly melted, when the swivelled handpiece is at once attached to the flask and rapidly swung around as much as one would a pail of water, and the metal disappears from sight.

Dr. Piper uses pure aluminum, and he buys of the Bridge Dental Co., Detroit, and he also intimates that some experimental work should be first had upon this whole process, and if some failures follow, yet success is bound to come.

In the after-vulcanizing of the teeth to plate, the latter will come out quite dark and difficult to clean up, but this is readily remedied by dropping into a bath of costic potash.

We understand that this clinic has been given at Sarnia with as great satisfaction as it was to us.

DOMINION DENTAL COUNCIL OF CANADA—NOTICE OF EXAMINATION.

Notice is hereby given that the next examination for the certificate of qualification to be granted by the Dominion Dental Council of Canada will commence on Tuesday, the seventh day of June. The examination will be held simultaneously in all of the agreeing provinces of Canada.

Those eligible to take the examination are the following:—

Class A.—Those who commenced the study of Dentistry subsequent to the first day of January, 1906, are registered as students, and meet the matriculation requirements. These can take the progressive examination under the rules prescribed.

Class B.—Those who were registered students in any of the

agreeing provinces on the first day of January, 1906. These can take the progressive examination under the rules prescribed.

Class D.—Those who were registered licentiates in any of the agreeing provinces on January 1st, 1905; who have been in "regular, legal, ethical practice" in one or more of the agreeing provinces, but who have not yet completed the ten years necessary to place them in Class C, may take the examination prescribed for Class D.

Take notice that all applications should be in the hands of the Secretary by the first of May.

For full information regarding the D.D.C. and the forthcoming examination write the Secretary, Dr. W. D. Cowan, Box 325, Regina, Sask.

DENTAL SOCIETY OF WESTERN CANADA CONVENTION.

April 18th and 19th, 1910.

Arrangements are being completed to make our next meeting a huge success.

The committees are all hard at work to even surpass the splendid effort of last year.

It gives us much pleasure to announce that Dr. Thomas B. Hartzell, of Minneapolis, and Dr. F. E. Roach, of Chicago, have promised to be our guests.

Mark off the dates on your appointment book **now**, for you cannot afford to miss this treat.

Be prepared to respond to the programme committee, from whom you will hear in a few days.

M. H. GARVIN, Secretary,
314 Somerset Block.

MONTREAL GENERAL HOSPITAL DENTAL SOCIETY.

Dr. G. S. Armitage

Dr. J. S. Dohan

Dr. E. G. Henry, Sec'y

Dr. E. J. Stuart

Dr. J. T. McCrae

Dr. J. S. Ibbotson, President.

Dr. D. J. Berwick

Dr. R. W. Watson

Dr. H. T. Throsby

Dr. J. B. Morrison

Dr. F. G. Henry

CANADIAN DENTAL ASSOCIATION.

ONTARIO DENTAL SOCIETY.

Meeting at Toronto, May 31, June 1, 2 and 3, 1910.

Have you anything new, such as instruments, appliances, drugs, office equipment, etc., or any new or improved way of per-

forming any particular operation? Do you wish to see a clinic upon any particular operation? Do you wish to see a clinic upon any particular branch of dentistry? If so, communicate at once with Dr. C. G. Scott, Supervisor of Clinics, 1 East Charles Street, Toronto. The committee desires that the clinics shall meet the wishes of every man attending.

The manufacturers of and dealers in Dental Supplies and Furniture will have full Exhibits in the New College Building, where the meeting will be held.

Single fare return rates will be available for everybody, wives and friends included. Announcement later of completion of programme.

GEORGE W. GRIEVE,

2 Bloor St. East, Toronto.

Secretary of Executive.

ANNUAL CONVENTION XI PSI PHI FRATERNITY.

The twenty-first annual convention of the Supreme Chapter Xi Psi Phi Fraternity was held in the city of Toronto on the fourteenth and fifteenth of February, at the King Edward hotel, proceedings being opened at nine o'clock of the fourteenth with President Brundage, of Chicago, in the chair. At twelve o'clock the regular routine of business was set aside, when Mayor Geary extended the freedom of the city to the visiting delegates, being introduced to the convention by Dr. Montgomery, Dr. Brundage replying on behalf of the convention.

There were present in all forty delegates, representing subsidiary chapters located at every principal dental school in the United States, also representatives from the different Alumni Associations of the fraternity. Among those present were Drs. Brundage, Markey, Adams, Pinney, and Alderson, of Chicago; Drs. Hoffman and Storms, of Buffalo, Dr. Gelson, of New York, and Dr. Roan, of Minneapolis. Dr. Hoffman secured the honor of being elected president for the ensuing year.

During their stay in the city the delegates were entertained by the members of the local chapter, the entertainment consisting of sightseeing throughout the city, tobogganning at High Park, and a hockey match which the delegates attended in a body Tuesday night.

The annual banquet of the Supreme Chapter was held at McConkey's on Monday night, the Supreme Chapter members and delegates being the guests of the local chapter.

Tuesday morning the delegates, through the courtesy of Dr. W. E. Willmott, were taken on a tour of inspection through the new building of the Royal College of Dental Surgeons, and to a man the verdict read that Toronto possesses the finest dental school in America.

The delegates left for Buffalo Wednesday morning where a reception and banquet were tendered them by Mu chapter.

KENTUCKY STATE DENTAL ASSOCIATION.

The forty-first annual meeting of the Kentucky State Dental Association will be held in Louisville, May 26, 27, 28, 1910.

An unusually interesting and profitable programme is being arranged for this year, and a cordial invitation is extended to all ethical members of the profession.

W. M. RANDALL, Secretary,
Cor. Brook and Broadway, Louisville, Ky.

HAMILTON DENTAL SOCIETY.

Reported by Mr. D. O. S. Clappinson.

The last monthly meeting of the above Society, season 1909-1910, was held at the "Commercial Club," Monday evening, February 14th. A large percentage of the members were present to hear J. P. Morton, M.D., F.R.C.S., Edin., give a splendid paper on "The Relation of the Nasal to the Oral Cavity."

The Society reports a very successful year, and will end the season with the annual banquet in March.

Reviews

Care of the Teeth. Published by the Canadian Oral Prophylactic Association, Limited, Toronto. Author, Geo. Græve, D.D.S., L.D.S., 2 Bloor Street, Toronto, Canada.

This is a sixteen-page brochure discussing the care of the teeth in suitable language for the educated public. It is a very interesting article and deserves a careful reading by every dentist. It is recommended by the Minister of Education of the Province of Ontario, and will be sent to every teacher in Ontario by the Department of Education. There are thirty-five thousand of these pamphlets printed—ten thousand will go to the teachers of Ontario and, with the consent of the other provincial departments of Canada, one will be sent to every teacher in the Dominion. Every dentist will receive one. Every physician, druggist, clergyman and editor in Canada will also receive a copy. Every dentist in Canada will receive a letter from the Association explaining the objects of the Association and on what conditions copies of the pamphlet may be obtained for distribution among a dentist's patients.

This is the first real educational work undertaken by the Canadian Oral Prophylactic Association, and is worthy of their effort. This Association is in a fair way to be one of the most important factors in dental education in Canada. The honorary secretary is A. J. Broughton, 305 Markham St., Toronto, Can.

Dental Materia Medica. By Hermann Prinz, M.D., D.D.S. The C. V. Mosby Co., St. Louis.

With the publication of this book, the science of dental therapeutics has been brought up to date and the study of dental pharmacology placed on a rational basis. The first part of the book deals with general therapeutics, the action of drugs, methods of administration, prescription writing, etc. The second part is devoted to a discussion of those remedies usually found in a *Dental Materia Medica*. It is here that the author has done the profession a real service. The discussion of the action and uses of the various remedies is decidedly modern and ample enough for all practical purposes. Only those which have been thoroughly tried are mentioned, and proprietary remedies are (quite properly) omitted. The results of the most recent researches are noticed and the discussion and illustrations are such as to make the book very readable, and much more interesting than most similar text-books.

Chapters on local and general anaesthesia make the methods of procedure quite clear.

The use of glazed paper and some subject matter which looks like "padding" are open to criticism.

Altogether, the book can be recommended to those who wish to master the art of modern therapeutics.

Dominion Dental Journal

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M. F. CROSS, L.D.S., D.D.S.
Ottawa

NEW BRUNSWICK
JAS. M. MAGEE, L.D.S., D.D.S.
St. John

NOVA SCOTIA
FRANK WOODBURY, L.D.S., D.D.S.
Halifax

ALBERTA AND SASKATCHEWAN
W. D. COWAN, L.D.S.
Regina

PRINCE EDWARD ISLAND
J. S. BAGNALL, D.D.S., L.D.S.
Charlottetown

MANITOBA
J. H. GREENFIELD, D.D.S., L.D.S.
Winnipeg

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VOL. XXII

TORONTO, FEBRUARY 15, 1910

No. 2

THE CANADIAN DENTAL ASSOCIATION.

The Canadian Dental Association meets in Toronto May 31, June 1, 2 and 3. There are many dentists in Canada who do not realize what has been accomplished by this national dental organization. When the first Canadian Dental Association was held in Montreal, 1902, the dental profession of Canada consisted of a number of disconnected units in each province. It was with difficulty that a dental act could be passed or maintained in many of the provinces. Some of the local governments recognized the profession except as a nuisance. The standard of dental education was not at all equal in all the provinces. Legislatures were in the habit of overriding the dental acts. The Dominion Government knew not of our existence.

Note the difference to-day. At the first meeting in Montreal

Hon. J. Israel Tarte and Sir Lomer Guoin were speakers at the banquet. Prominent dental educationists from all over Canada and the United States were present. This meeting brought together the official dental bodies of the provinces, out of which finally came the Dominion Dental Council, an organization in itself, which has done more to make known abroad the dental profession of Canada than all other organizations together. When international congresses are held Canada is now officially represented; formerly only provincial organizations existed, which were not accepted at international congresses. The writer was compelled to attend an international congress as a delegate from a foreign country because Canada was not known to the congress officials. Last year at the Berlin Congress Canada was known and officially recognized. Besides this, there were two official government delegates to represent Canada—Drs. Dubeau, Montreal, and A. D. A. Mason, Toronto.

At the first meeting of the Canadian Dental Association steps were taken to have dentists appointed to the Canadian militia. Under the careful guidance of Dr. Bower, of Ottawa, an Army Dental Corps has been established in Canada with higher rank than in any other army in the world.

At the meeting in Ottawa, 1908, was organized the dental examiners meeting. All the examiners of dental students for progress or for degrees in colleges or for licenses, came together and discussed the different means of examining students. Out of this meeting came certain important changes in the Council examinations. There will be another meeting of this body this year.

Out of a paper presented at Ottawa by G. K. Thomson on the examination of the school children's teeth, of Nova Scotia, has come a great stimulus in the direction of dental education of the public all over Canada. At that meeting the Canadian Oral Prophylactic Association was asked to look after this important work for the Canadian Dental Association during the succeeding two years. There will be a report from this organization at the next meeting which will show marked progress all over Canada. School boards, hospitals, and social and educational organizations are becoming interested in the work of preserving the teeth.

The public of to-day are interested as never before in everything pertaining to dentistry. Legislatures are willing to give all possible assistance to every rightful effort of the profession to do its duty to the public. Some of the provinces have, within the

past few years, passed dental acts which would have been impossible ten years ago.

With such a history, has not the Canadian Dental Association some claim on your gratitude? Is it not an honor to be a member of such an organization? In these days of imperialism has not dentistry done more than any other professional organization in Canada? Those who were present at the organization have reason to look back with pride on the results of their building. Much as has been achieved in the past, it will be as nothing compared with what will be done in the future. How could any progressive Canadian national-spirited dentist hinder himself from taking part in making the dental history of his country?

There will be a good programme at the Toronto meeting, a single-fare return railway rate, at a pleasant season of the year. Meet your old friends.

DENTAL CLINIC IN MONTREAL GENERAL HOSPITAL.

The Montreal General Hospital has recently added one more to the many channels in which it has served the public of Montreal so long and so successfully by the opening of a new dental dispensary.

Last spring the dental dispensary, which had up till then been maintained in the city by the Dental College, and in which all dental students, both French and English-speaking, received clinical instruction, was abandoned. Provision was made for the French-speaking students by the University of Laval. This left the English-speaking students out in the cold, and unless clinical facilities could be provided for them it became evident that within a very few years there would cease to be any English-speaking dentists practising in the city of Montreal. In explanation of this statement, it may be remarked that the matriculation or registration requirements for the study of dentistry in this province are of such a character as practically to prohibit the settlement in the city of dentists who have been trained outside of this province.

This condition of affairs was brought to the notice of Mr. James Crathern, the president, and Mr. Harry Stikeman, a member of the Hospital Board. These gentlemen at once undertook, in a spirit of enlightened public interest, to set the matter before the general board of the hospital. It was felt that apart from pre-

serving the continuity of English-speaking dentists in the city, provision for the alleviation of suffering and disease through the teeth was as needful as the like provision for any other organ of the body, and ought to be included among the activities of a general hospital. This view was adopted by the hospital board, and steps were at once taken to provide the required facilities. Dr. Geo. E. Armstrong, Dr. J. S. Ibbotson, the surgeon-dentist to the hospital, and Dr. D. J. Berwick, the head of the dental school of McGill University, took the matter up energetically, and the hospital authorities having at considerable cost converted a part of their building, formerly used as a chapel, into suitable administration and laboratory rooms, a fully equipped and modern dental dispensary of six chairs is now in full swing and filling a long-felt want.

The new dental clinic is open to the public between the hours of 9 a.m. and 1 p.m. daily, and the number of applicants for treatment already foreshadows the necessity for greatly increased accommodation in the near future.

The department is equipped with all the most modern dental appliances, and students attending the dental courses at McGill University have the privilege of attending all the daily clinics under the following list of surgeon-dentists, who supervise and demonstrate all the branches in dentistry.

	9 a.m. to 11 a.m.	11 a.m. to 1 p.m.
Monday.....	Dr. G. S. Armitage	Dr. J. S. Ibbotson
Tuesday.....	Dr. J. S. Dohan	Dr. D. J. Berwick
Wednesday...	Dr. F. G. Henry	Dr. R. W. Watson
Thursday.....	Dr. E. J. Stuart	Dr. H. T. Throsby
Friday.....	Dr. J. T. McCrae	Dr. J. B. Morrison
Saturday.....		Dr. T. J. McGregor

Dr. R. S. Woolatt, a graduate of the Royal College of Dental Surgeons and of Toronto University, is in charge of the department as superintendent.

A. GIFT.

The city council of Toronto has given the entertainment committee of the Canadian Dental Association three hundred dollars to assist in entertaining the profession while attending the meeting of the Canadian Dental Association, May 31, June 1, 2 and 3. The Association now wishes to express to the city council its appreciation of their gift.

DENTAL CLINIC IN MONTREAL HOSPITAL.

While in Toronto the general hospital has no desire to have a dental clinic, the general hospital of Montreal has established such a clinic. The fact is the dental clinic is established under precisely the same conditions as the medical or surgical clinic. This is only as it should be. It is just as desirable to teach dental students their practice in a general hospital as it is the students of medicine. The funds of the hospital should be used for this subject as well as for any other department of the healing art. We must congratulate our confreres of Montreal for having the foresight and ability to make such a suitable arrangement with the general hospital for teaching the practice of dentistry. We will bespeak good results under such favorable conditions.

THE COAL TAR PRODUCTS.

The Department of Agriculture of the United States has been investigating the foods of the people. As a result of the investigations of the department under Dr. Wiley, there has been a pure food law enacted. The department has given much attention to patent and proprietary medicines. As a result there is in the United States a Pure Drug Act. The most recent investigations of Dr. Wiley have been directed along the lines of manufactured drugs with fancy names. Among these come coal tar products, such as acetanilid, and phinacetin. Dr. Wiley found by inquiry that these drugs had a depressant effect on the heart. A very peculiar thing about this part of his investigations is that he asked certain questions regarding these products from 925 physicians, refusing to give the names of the physicians consulted. A Dr. Boone, of St. Louis, undertook to get similar information from the hospitals and sanatoria of the United States. Over a thousand were consulted. The name of each hospital was given and the letter published that was received. All the results given openly. These results were almost the opposite of those obtained secretly by the Agricultural Department. Out of 1,027 replies, 996 report no untoward results after years of experience with coal tar products, and not a single case of drug habit was reported. Seventeen cases report irregular pulse, weak heart action and cyanosis under the administration of the drug. There is no mention of the size of the dose taken. While the findings of Dr.

Wiley and Dr. Boone are quite at variance, it would seem that Dr. Boone had the best of the investigation. It would be gratifying to the dental profession to know that the coal tar products are not injurious to their patients, because they are used as the sheet anchor in all severe pains or infections about the teeth.

The accompanying crest is the one chosen by the Canadian Oral Propylactic Association as their insigna. It was designed by A. H. Howard, Toronto, and the motto chosen by Prof. Hayes.



The motto translated is, "We stand guard over the mouth." The central figure is Saint Apollonia, the patron saint of dentistry, canonized by the church A.D. 300. A full account may be found in the history of dentistry recently published. The heart represents philanthropy, and on the other side is the torch of light, or education, and the maple leaves represent Canada. This crest embodies all the functions of the Association—Canada, Dentistry, Education, and Philanthropy.

TEMPLE PATTISONS IN NEW PREMISES.

The Temple Pattison Dental Supply Company have moved their head office and depot from Richmond Street, Toronto, to No. 12 Queen Street East, Toronto. The new depot occupies the whole of the top flat of the new McDonald and Wilson building. There is a depth of one hundred and twenty-five feet, with light on three walls and skylight in the roof. The offices are in the front of the building, the dental furniture is near the door of the elevator, while the tooth counter and general retail stock placed about the centre of the building. The arrangement here is admirable for conveniently waiting on customers and filling mail orders. The two rooms at the rear are fitted up for assorting, receiving and shipping stock. The entrance is on Queen Street, where the elevators are constantly running. Mr. McKenna, who has been for some time in charge of the Western Ontario business, is now in charge of the mail order department and the city sales department.

Editorial Notes

Dr. Lantier, of the city of Quebec, was recently elected alderman by acclamation.

The next examination of the Dominion Dental Council begins June 7th, 1910.

Dr. Fear, Aylmer, Ont., was a visitor at the new dental college in February.

The Temple-Pattison Dental Supply Company has moved to 12 Queen Street East, Toronto.

The next meeting of the Toronto Dental Society will be held Tuesday evening, March 22nd, 1910.

Dr. Oliver Leslie has been elected chairman of the Board of Education for the town of Perth, Ont.

W. D. N. Moore, of Chicago, was a welcome guest of the Toronto Dental Society at its last meeting.

Drs. Davy and Gorrell, of Morrisburg, were in Toronto for a few days during the latter part of February.

We regret that in a note in our last issue we gave an incorrect title to the Leighton-Jakes Mfg. Co., Limited.

Dr. Bothwell, of Stratford, is giving lectures on dentistry to the teachers in training at the Normal School.

Dr. A. W. Thornton was recently elected president of the Methodist Young People's Union of Toronto.

Dr. Trigger, of St. Thomas, Ont., has published a book entitled "Notes on Gold Inlays" which is worth your reading.

Dr. Wickware, with two other members of the Smith's Falls school board, were investigating technical education in Toronto.

Dr. E. H. Wilson delivered an address on Dentistry to about a hundred and fifty women at Perth, Ontario, Feb. 17th, 1910.

Dr. R. H. Green, Ottawa, has been asked to deliver four lectures on dentistry to the nurses in training at the General Hospital, Ottawa.

Dr. S. Gowan, alderman, of Brockville, was a member of a committee having business with the International Deep Waterways Commission in Toronto.

Dr. R. G. McLaughlin, Toronto, will read a paper before the Ontario Teachers' Association Easter week, on the relation of dental lesions to the general health.

By the efforts of Dr. Pinard, of Ottawa, the chief of police has been asked to resign. Dr. Pinault was able to show wrongdoing by the chief in military matters.

The Canadian Dental Association has completed arrangements for a single first-class return railway fare from all points in Canada to their meeting, May 31, June 1, 2 and 3.

Dr. Cunningham, of London, will address the Toronto Dental Society at its next meeting on some of the reasons why a dentist's license should be revoked, suspended or cancelled.

The city council of Toronto has made a grant of three hundred dollars to the entertainment committee of the Canadian Dental Association to help to entertain the visitors to the bi-annual meeting.

The Dental Society of Western Canada will hold its annual meeting April 18th and 19th, 1910. Dr. F. E. Roach, of Chicago, and Thomas B. Hartzell, of Minneapolis, will be guests of the Society.

Have you noticed the prominent places in the communities in Canada that dentists fill, or have you awakened to the fact that there is an awakening to the importance of dentistry in the public mind.

Dr. E. A. Mooney has entered action against the mayor and reeve of Vankleek Hill town council because of improper property qualification. The result is, the mayor and all the council have resigned.

In this issue appears the first editorial in the first issue of the first Dental Journal published in Canada. We intend to publish from time to time a few of the early editorials of the Canada Dental Journal. Dr. F. R. Mallory made the suggestion.

The legislative committee of the Board of Directors have interviewed the Department of Education with the view of having a dentist's certificate accepted by a board of education for illness of a teacher from dental causes. There is reason to believe that the matter will be favorably considered.

The Provincial Secretary of the Province of Ontario has given the legislative committee of the Board of Directors an assurance that the Liquor License Act will be amended so that a dentist may purchase from a druggist, for use in his practice, not more than six ounces of whiskey in any one day without a certificate from a physician. Upon investigation the committee found that it is unlawful for a druggist to sell whiskey to a dentist, but no hardship exists except in local option districts where there are no liquor stores.

FOR RENT.—City practice for rent for four months from end of May. Apply **Claudius Ash, Sons & Co., Limited.**

FOR SALE.—City practice of \$3,000 per year; on a good corner. Everything new. Address **Dominion Dental Journal, Box 15.**

FOR SALE.—Dental Practice, situated in a wealthy community; five railroad trunk lines; population 16,000; office centrally located; thoroughly appointed; good fees, mostly cash. Correspondence solicited. Ill health. Apply 557 TALBOT ST.
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Dominion Dental Journal

VOL. XXII

TORONTO, APRIL 15, 1910

No. 4

Original Communications

THE DENTIST'S DUTY TO THE PUBLIC AND HIS PERSONAL FITNESS TO PRACTICE.

By O. I. Cunningham, D.D.S., L.D.S., London, Ont.

(Delivered before Toronto Dental Society, March 22nd, 1910.)

As we stand upon the seashore while the tide is coming in, we see that one wave reaches up the beach far higher than any previous one, then recedes, and, for some time, none that follows come up to its mark, but after a while the whole sea is there and beyond it, so now and then there comes a man head and shoulders above his fellow men, showing that nature has not lost her ideal of great-heartedness, and after a while even the average man will overtop the highest wave of noble manhood yet given to the world.

Our profession abounds with examples of individual men who have reached far higher on the beach of attainment than the others of their time, and the tide of our professional progress is constantly levelling up to their standards.

I would like to impress upon every one here to-night, that we must keep ourselves on the rising tide of the progress of to-day or find ourselves submerged. Too many dentists, when they leave college, drop out of the current into a smooth, a sleepy eddy; or, rather are tossed from the college stream off into a sargasso sea, where navigation consists in drifting, in polishing the brasses and teaching the cabin-boy the knots and splices.

But we, as a profession, if we wish to attain that place among the other professions which we not only desire but deserve, must keep abreast of the great movements taking place in the world to-day, along the lines of health, sanitation, and preventative measures. And it will, I think, be profitable for us to consider to what degree dentistry and dental education have kept pace with this world development; in other words, has dentistry re-made itself in keeping with the intellectual and material progress of society.

As the years progress and man advances towards that perfection which marks his destiny, the productions of his mind in the arts and sciences keep pace with his mental development. Dentistry has approached the solutions of its problems with more definite steps than has any other field of human endeavor. It is a fact worthy of attention, that although known in its simple forms for countless ages, the art, as practised to-day, is purely the product of the last half century.

On every side the observant person must notice the great awakening along the lines of public health and public protection. With the increase of health items in our city and national budgets, the laws relating to private and public hygiene are growing more and more numerous on our statute books. This new inclination to legislate away all factors dangerous to health, received its first striking expression in the general establishment of boards of health throughout the country, which took place during the last two decades of the nineteenth century.

In quick succession we have passed on to the collection of vital statistics and other health information; to the reporting and segregation of infectious diseases; to factory inspection and regulation; to child labor legislation; to the protection of food against contamination and adulteration; to the inspection and control of the milk-supply, in a way that sets all abstract notions of "freedom" at naught; to the prevention of water pollution by means not less radical; to the standardizing and control of drugs, vaccines, and other medical preparations; to the study and extermination of disease carrying organisms, whether they be microbes, mosquitoes or rats; to the enactment and enforcement of endless sanitary and hygienic restrictions and commandments both against communities and individuals.

Our governments are kept busy dealing with questions that a few years ago never confronted them, except, possibly, as subjects for academical discussion. Industrial and mercantile concerns are introducing sanitary and hygienic measures in shops and factories, which serve as safeguards against disease. The rules of living which they preach and teach effect life in all its phases.

Everything indicates that we are here dealing with highly significant expressions of a world-wide awakening, the spirit of which is mainly characterized by the fact that it appeals with equal force and success to the leaders of academic thought and to the great lay public.

The question that concerns us most vitally is, are we as a profession living up to our obligations to the public in a moral sense?

From the mechanical viewpoint, dentistry is giving to the public one of its greatest needs. It has attained a degree of skill in operative procedure, which is at once the admiration of all. So much has been done along the art side of dentistry, so rapidly has one device followed another, that the attention, not only of den-

tists as a class, but of the whole world, has been focused upon our attainments in that direction, and there has developed in us a kind of pride which has tended to obscure other important factors in our professional development.

A part, at least, of these mechanical problems, might be left to that infallible prognostician—Time—for their ultimate solution. But rather we would draw away from these things which characterize us as mere artisans in the public eye, and endeavor to analyze the reasons for this attitude of the public towards our profession.

With this thought in view, I will call attention to a few things wherein we might raise our standard of efficiency for the protection of the public. First and foremost is the need of asepsis. We are inclined to think that the greatest progress made by man within the last half century lies in the discovery and application of means of defending himself against the multitudinous enemies which—"horsed on the unseen couriers of the air"—threaten his life and health at every point where there may be a weak spot in his armor. This is a time of awakening, and it behooves us to respect in the fullest sense the demonstrated necessity for asepsis in our individual practice. There is a growing appreciation everywhere of a high regard for the importance of measures, which will prevent contagion and infection. And if we aspire to perfection, we must adopt advanced measures. With this in view, the dentist owes a duty to his calling and an obligation to his patients to place his practice above reproach, to render a service which cannot be criticized from any standpoint.

Do not think that that service is rendered by making the office look like a hospital operating room. I do not deprecate the value of furnishing with a view to asepsis—but to furnish the operating room after the hospital plan in glass and enamelled iron, and with all the dental and electrical paraphernalia in full view, seems unnecessarily ostentatious. We can be aseptic without being extreme.

We should develop the aseptic spirit, the determination to faithfully carry out, in every instance, the detail of presenting to each patient ourselves and our equipment attractive and thoroughly aseptic. It is not enough that we purchase the latest appliances for sterilization, etc., we must use them, for here above all the personal equation plays its part. For though a system may be so perfect that in theory it would be almost impossible to have an accident under it, yet of what use is it, if the dentist who operates is careless.

It is to this matter of the personal equation that I wish largely to direct your attention. Why should a man be allowed to be careless? Why should he be permitted to practice if he does not observe the ordinary means for the prevention of infection?

The candy and peanut vendor on the street is obliged by law

to keep his wares in a glass case or covered against infection from the street dust.

The Board of Railway Commissioners orders the railways to properly clean and disinfect and to properly keep clean and disinfected its passenger cars, stations and waiting rooms, in order to prevent dissemination of tuberculosis or other infectious or contagious diseases.

Men are liable to a fine if they expectorate in a street car, and yet the careless dentist or physician can, by the use of unclean instruments, convey directly germs from one patient to another without anyone saying him nay.

It is encouraging to note that the great majority are honestly performing these duties regarding asepsis, but it must not be lost sight of that there are a great many practitioners who, through carelessness or indifference, pay little or no attention to them. If city councils, railway boards and those interested in other lines of industrial pursuits, in forwarding these movements for a better protection of the public from infection, find it necessary to adopt coercive laws to regulate it, might it not be suggested that we, as a profession, could render inestimable service to the public by framing a law whereby these careless and indifferent dentists might be made responsible if they did not keep their offices up to an ordinary standard of asepsis.

At present the law guarantees to the public that the dentist has the necessary knowledge, but it should go further and see that he uses this knowledge in his practice.

Mr. Devlin, in the *Cosmos* for this month, says that "the masses should be zealously watched over by the law, and where a dental practitioner has not as well a knowledge of bacteriology and immunity, his establishment and his work should be subject to the inspection of a proper commission, who would see to it that his office was sanitary, his instruments properly sterilized, and his patient antiseptized!

The sanitary dentist would have nothing to fear from such a commission; the unsanitary would be brought up from sloth and the public saved much risk.

With our rapidly increasing knowledge of infection and its control, such a commission as mentioned above would render valuable service not only to the dental profession but to many other activities. It could examine the instruments and sterilizing appliances used, the sanitary conditions existing, observe the method of procedure, offer suggestions if necessary, and see that only legally qualified persons have charge or are employed. Aside from the direct value of the inspection, the moral effect of the anticipated inspection would be to raise the standard of offices generally.

Such a commission would be most effective if under government control, especially if managed by a department of health.

May I digress for a moment to emphasize the need of a depart-

ment of health. There goes on forever an extension of governmental functions because new duties arise that can be done by no other agency, or, at least, will not be done by any other. Among such new duties is the work that the government might do to preserve the public health—not only to prevent the importation of diseases, but to prevent diseases that already exist. There is no other field for human progress so plain.

The task of putting into effect the preventive measures against disease that have been indisputably proved effective, is a hard one, yet, if it could be done the saving of life and the saving of wasted effort, time and expense would put working society on a wholly different basis from the ailing, wrongly fed, bad breathing, quack-ridden, disease transmitting kind of existence that we now lead. Consider the absurdity of any government, which has a department to protect the lives of hogs and cattle, and not a department of health to protect the lives of human beings. The government, through its department of agriculture, spends thousands of dollars to fight disease of cattle, but not one cent for the prevention of infant mortality or dental and medical inspection in schools.

Dr. Wood, of New York, states that more harm is done the children in the schools by bad teeth than is done to grown-ups by alcohol. After studying 40,000 children in New York, a committee found that children with bad teeth made slower progress—averaging five months slower—in completing the school course, than the other children.

These are but examples to show the need of a department of health in the government. Such department, equipped and managed with common sense and directness, could do much.

Secondly, we might consider Personal Fitness as regards Drunkenness, Drug Habits and Insanity. These may be considered together as they all produce mental inefficiency.

Dr. Guilick says: "Our personalities are built up in strata, one layer added to another. At the bottom lie the savage virtues and vices of our remote ancestors. The code of morals of cliff dwellers and hunting tribes still hold there. At the top lie the higher attainments of an advanced society—the things that have taken hundreds of years to acquire. In men, patience is one of these, modesty is another, chastity and a fine sense of personal obligation belong in the list too.

Now when, through drink or drugs, a man's mind is affected, it naturally undermines these latest strata first. It has forced him back a few hundred generations. His self-control is at a low ebb. His moral sense is dulled, he loses the vividness of his distinctions between right and wrong, honesty and dishonesty. We degenerate from the top down, the last acquired is the first lost.

It follows that, since he has lost the higher attainments of a civilized being, he is not competent to have the care of others entrusted to him. His character, honor and self-respect may be bartered with ease. I am not referring here to the occasional trans-

gressor, but to the habitual drunkard, the hopeless drug habituate, the insane; for illustrations are not wanting where instances of each of these types has continued in practice until the public, as a matter of self-protection, left them in isolation. But not before they had done considerable harm.

Rule 11 of the Grand Trunk Railway Co. reads: "Intoxication, or the use of intoxicating liquors, will be sufficient cause for dismissal." The railways are held responsible for the welfare of the public, while such are in their care, and in endeavoring to produce the maximum of safety, regard not only the drunkard but those who use intoxicating liquors as incompetent servants. Industrial concerns are following in the steps of the railroads, until now, an habitual drinker is no longer considered a capable employee. If the drunkard is considered incapable by the railroads, of having the lives of passengers entrusted to him, is there any special dispensation whereby he should have the health and even the lives of patients entrusted to him because he is in the professions? We must come to think of ourselves, not as individuals but as a body—a corporation if you wish—having rights or privileges extended to us, in return for which we serve the public in our special calling and are responsible to them for our standard of efficiency. It should not be necessary to more than state that the drunkard, drug habituate or insane are incapable, and we should not be behind the industrial pursuits in recognizing them as dangerous and dealing with them accordingly.

Some one will say: Oh, but the law as at present constituted will punish them if they are convicted of carelessness or malpractice. I grant you so, provided the person injured enters an action at considerable cost to himself, but that at best only metes out a punishment and does not lessen the injury to the person. That is the thought I wish to convey, if by wise legislation or restriction we can lessen the probability of these cases of carelessness, incompetency or malpractice, to that extent we not only add additional protection to the public but have raised our own standard.

In the third place we might consider the morally degenerate. I refer particularly to the profligate, to those affected with venereal diseases. By-law 6, sec. 1, sub-sec. 6 of the Ontario Act says: that in order to receive a diploma the applicant must be of good moral character; but nothing is said about its continuation. We are able to govern the entrance to our profession, but seem unable to govern those who afterwards degenerate.

The dentist affected with syphilis is more dangerous to those coming under his care than the smallpox patient who walks the street, yet the latter is isolated as soon as detected, while the former at present is not restricted in the least.

Venereal diseases are infectious beyond all others, since the physical health of the victim does not modify it. Particularly is this so of syphilis, its inception only calling for inoculation. Cases of innocent inoculation are so numerous as to justify serious

consideration. Neisser has stated that the danger of inoculation by infected instruments must be small, because the virus dies soon after removal from the body. Now since occasionally even a touch from an infected person is sufficient to transmit the disease, it must be obvious to all that the dentist, if infected himself, is more dangerous than the careless operator who neglects to clean his instruments. Yet the latter is constantly being admonished, while the former is not even reproached. It is a lamentable fact that venereal diseases are not recognized by the state and are free from all control. Dr. McElhenney's paper on "The Relation of Dental Degeneration to the Social System," read before the Ontario Society last April, is a timely warning, and should be given serious consideration.

These are conditions that should be given thoughtful contemplation by every dentist, and we should not delay too long the finding of the remedy, at least, not until those outside the profession find it necessary to show us our duty.

There are few things that give us a greater discomfort than the recollection of the fact that by our own procrastination, indifference or carelessness we have suffered loss in character or neighborhood esteem. What is past is beyond recall, but we may avoid future criticisms by highly resolving that we shall do our utmost at all times. It is only while the water of the river of time flows over the mill wheel of to-day's life that we can use it.

This question of delaying and shifting our responsibility is as old as the race. Cain's question, "Am I my brother's keeper?" is to-day answered in the affirmative. We are learning to think in collective terms—so to speak. We have all the time been observing the individual as if, whenever he suffered or did anything wrong, he existed apart from all other men. Our faith in the gospel "of each one for himself and the devil take the hindmost" is becoming seriously shaken. Any interest we might take in the ailing health of some person outside of our own circle of relatives or friends, looked like a gratuitous display of generosity, wholly unconnected with any interest of our own that might be at stake. But we are daily being taught how intimately our fortunes—those of the highest and those of the humblest amongst us—are interwoven. We are beginning to grasp the futility of planning the welfare of any one human being apart from the rest of mankind. We are coming to think of ourselves, at last, as links in a chain so firmly bound together that, when the devil grabs the hindmost the wrench is felt by the topmost—felt in the very marrow of his bones. This connection of everybody with all the others, is brought home to us in many different ways. Because a lone man up in the mountains had a protracted case of typhoid fever, and the careless nurse threw all waste out on the snow, which, when melted in the spring, carried infection down an otherwise pure mountain stream, so that one-fifth the population of a city miles away were stricken with typhoid, it is quite plain that our very

existence may be involved in this hitherto unsuspected community of fate.

When a man receives his diploma to practice dentistry or medicine, it should be a bond to the public that while he makes use of it he is competent to perform these duties. Likewise, if he afterwards becomes careless or mentally incapable to the point in which the public becomes endangered, it follows that, since he is not living up to his profession or bond, it should perforce be cancelled. Society has clearly the right to insist that he be deprived of the power of doing further mischief.

In all civilized countries the instrument used by society for its protection is the law. Bouvier has defined law as "The rules and methods by which society compels or restrains the actions of its members."

Legislation is as necessary in the control of professions as it is in the control of society. There are dishonest and evil-minded individuals, who, gaining access to a profession, work incalculable injury and make dark spots on the shield of honor of those callings. Much of our legislation owes its existence to the effort of those who make the protection of the dental practitioner against the competition of his unqualified neighbor the primary and leading motive. Such being the case, the question, "what may the public expect from such legislation?" becomes a very serious one.

The present laws, regulating the practice of dentistry, are inadequate, because they have not been so framed as to benefit the public as a class, but the dentist, who constitutes only a very small portion of that class. It is quite obvious that the visible effect of those laws is to render it more difficult to engage in practice and thus to measurably protect against competition those already established.

A code of ethics, as a guide to professional conduct, is well enough for those who respect their calling and who seek to aid their fellow man by rendering him the best possible service, but in this day and age something more tangible than the golden rule is required to protect the public from those, in the profession, who seek the greatest possible gain for the least possible service rendered. And it is to the credit of the profession that they have passed laws regulating the practice of dentistry, which, though they may be called "narrow and exclusive," have rendered good service. And mainly such action was not delayed until the public, as a matter of self-protection, demanded it.

In my opinion dental laws should be made under the inspiration of the desire for public welfare, as well as class interest.

Those who have given attention to the gradual growth of saner views on the question of dental legislation have at last grasped the fundamental principle that dental laws are made for the protection of the public against incompetency, and are not class legislation simply for the protection of the practitioner.

Clearly, it is time for a change. Properly framed dental laws

should prove a decided benefit and would command the support and confidence of all the creditable part of the profession. To accomplish that, though, they must be broader and more liberal than any in force now.

I regret that I have been unable, in the time at my disposal, to get copies of the new laws in process of construction and also those in active operation in some of the newer western states and territories, which, I understand, are dealing, in a measure, with the class of practitioner described in this paper. Most of the older states have laws which, if enforced, would tend to the consummation of these ideas.

By-law No. 10, sec. 1, of the Ontario Act, reads: "The Board shall have the power to cancel or suspend the certificate of license of any Licentiate of Dental Surgery who has been guilty of professional misconduct unbecoming a Licentiate of Dental Surgery."

This by-law is good as far as it goes, but it might be difficult to connect the careless in regard to aseptic conditions, or drug habituate, or insane persons, as guilty of professional misconduct. The act is good, inasmuch as it tends to the morale of the profession, but I fail to see where the public can expect much protection.

The following is part of the law of New York State: "If any practitioner of dentistry has been found guilty of unprofessional or immoral conduct, or that he is grossly ignorant or inefficient in his profession, the regents may suspend the person, so charged, from the practice of dentistry for a limited season, or may revoke his license."

Under this law we have immoral conduct specified, also the inefficient, which would include drunkards, drug habitués and the insane. Here we have but to prove that these are inefficient; which would not be difficult. The railroads and other industrial concerns have long considered them so. Laws are but the crystallization of custom. Custom in the past has been content to interfere but little with this class, for which reason it is the more difficult to deal with them now. Our customs are undergoing radical changes at present, and if we can crystalize these changes into fair and just laws, we will mark another advance toward the ideal.

These laws are capable of greater enforcement than present custom allows, but they show an upward tendency toward the ideal. This levelling upward idea is the correct one, and if the visible effect is to render it difficult for careless or incompetent dentists to practice, the public will have gained additional protection, and the profession a higher standard.

There is no line in professional life that is more difficult to draw than the line that divides the competent from the incompetent man. The man, his surroundings, the customs prevailing in his profession at the time, and the condition of the public mind must all play a part. As we advance as a profession our ideas of what constitutes efficiency and inefficiency will change to correspond.

Forty years ago anyone with a few months apprenticeship was considered efficient. To-day a four years' course in a college exclusively devoted to the teaching of dentistry, is the minimum for efficiency. Then, anyone who wished could practice dentistry. Now the applicant must be of a certain age, of good education, and good moral character. So our ideas of efficiency must change as our profession advances.

The dentist of to-day is weighted with a heavier responsibility than those who preceded him. The extent of knowledge is greater, the professional responsibilities and activities more varied and exacting. The public and the profession rightfully expect more of its practitioners than in times past.

The principle of any legislation relating to the protection of the public must be settled on the basis of the competency or incompetency of the individual. If that be the case, we must establish whom we consider as competent or incompetent. Such a procedure is necessary, for if a member be charged with unprofessional conduct or incompetency, if there be no law, there can be no punishment for the infraction of what does not exist.

At present we have a high standard for efficiency from the mechanical and therapeutical side, but very little as regards the moral aspect. The time is opportune now for us to consider the moral efficiency of the dentist, and not leave it to those outside the profession to show us our duty.

It must be patent to all that a person under the influence of liquor is not a competent individual. If that occurrence becomes habitual, he should be legislated to a place where he can, at least, do no one but himself harm. The same applies to the drug habituate and the insane. These cases appeal more directly because they are physical violences, and, as such, are more directly discernable. But how about the dentist who does not practice asepsis in his office? The direful results are the more because the effects are not so easily seen.

With our present knowledge of bacteriology it should only be just to place this class of practitioner among the incompetents. The most difficult of classification, however, is the profligate. He may appear competent and efficient from the mechanical side, yet a positive danger to those coming under his care. His has always been considered a personal matter, and, as such, will be difficult of proper regulation. But there are some cases of degeneracy and danger so patent that public safety demands their control. Aside from the danger of innocent inoculation which the profligate can exert, his conduct towards his patients must be of a dangerous nature. Since he has no respect for himself, he can have none for others.

A man's conduct towards others is determined by his respect for himself, not his respect for them. His respect for himself is the measure of his respect for others. Looked at in this light he

should be considered as a degenerate and inefficient person, and be subject to restrictions as such.

This subject is extremely elastic and there is much that might be said, but the purpose of this paper is mainly to introduce a discussion along proposed new lines.

In concluding, I wish to impress upon you the necessity for a larger conception of life on the part of the dentist, a recognition of the call to sacrifice and to service, both personal and public, that we may impart a more elevated tone and vitalizing force to our profession.

"No success in life," says Frances E. Willard, "is anything but an absolute failure, unless its purpose is to increase the sum of human good and happiness!"

He's true to God who's true to man :

Wherever wrong is done
To the humblest and the weakest
'Neath the all-beholding sun,
That wrong is 'also done to us,
And they are slaves most base
Whose love of right is for themselves,
And not for all their race.

—Lowell.

Discussion

Dr. Seccombe said, in opening the discussion, that he remembered Dr. Cunningham very favorably during his college career and that the paper which he had just presented might be considered as an uplift to the dental profession, while as a matter of fact the profession of dentistry needed no more of an uplift than any other profession. The fact is that dentistry, when it became separated from medicine, was stimulated in its growth and development because of its isolation, much as the Dingley Bill increased the development and independence of the Dominion of Canada. Dr. Cunningham mentioned a few things which might be called blemishes on the dental profession, one of them being a lack of asepsis among some of the practitioners. While this may be admitted, yet he did not look with favor upon a government commission to regulate dental practice. No doubt some day there will be established a department of public health in the Ontario Legislature, but there will be many things for such a department to do long before it reaches the dentist. Lack of cleanliness might properly come under the jurisdiction of the discipline committee of the Board of Directors if they thought it advisable to do so. By-laws are sufficiently broad and elastic to permit considering such important matters by the discipline committee.

Dr. Seccombe thought that the education of the public was one of the greatest forces in compelling the dental profession to keep up to the modern standards. The different departments of

the Ontario Government were glad to send out educational literature concerning dentistry to the people of Ontario. The college itself should be a training school or a centre about which the public and the profession should look toward for stimulation and education in the future. The college should send out bulletins of an educational character to the profession in Ontario, but one of the essential features in raising the professional and ethical standing of the profession is to completely abolish indentures. A student who sees and hears bad examples is more likely to prostitute the profession than those who are trained under better influences. Dr. Cunningham said that our Dental Act was too much in the direction of making a close corporation of dentistry, but Dr. Secombe thought that Dr. Cunningham would change his views if he would consider these by-laws:

By-law No 43, for the regulation of the profession of Dentistry.

1. No member of the Royal College of Dental Surgeons of Ontario shall, while such member, be guilty of professional misconduct or of any conduct unbecoming a licentiate of Dental Surgery.

2. No such member shall practice his profession in such a way as that he shall or may be unable to give full force and effect to his training, experience and judgment as acquired in the course of his education by the said College, in particular and without restricting the generality of the provisions:—

(a) No member of the said College shall as employee, assistant, agent, partner, officer, shareholder or otherwise howsoever practice his profession under the control of or for the benefit, profit or advantage of any Corporation, or of any person not being duly qualified and lawfully entitled to practice Dentistry in Ontario, or in such a way that directly or indirectly any such Company, or unqualified person may or shall make thereby any profit, reward or advantage.

(b) No member of the Royal College of Dental Surgeons of Ontario shall employ any person not legally qualified and duly authorized under the said Act to prescribe any medicine or dental treatment or to perform any dental operation, or shall permit any such person in his name, or for his benefit, or on or about his premises to prescribe any medicine or dental treatment, or to perform any dental operation upon any person whatever.

(c) No member of the Royal College of Dental Surgeons of Ontario shall practise his profession as a dentist within the Province of Ontario save only in his own name, or under the name or names of some other duly qualified and authorized member or members of the said College.

(d) No member of the Royal College of Dental Surgeons of Ontario shall in any manner whatever practice his profession subject to the authority or control, express or implied, of any person not a member of the said College.

Under the heading of morals Dr. Seccombe thought that it might be difficult to make a code of ethics and equally difficult to enforce it, for example, who is to decide when drunkenness is to be a barrier to the practice of dentistry. The State does not make it a crime to be drunk, the offence for which a drunkard is arrested is disorderly conduct. This being true, it would be very difficult for the dental profession to set up a standard of morals which they could enforce along this line. In closing, Dr. Seccombe expressed a deep appreciation of the effort Dr. Cunningham had made in preparing his paper. He closed by congratulating Dr. Cunningham and the Society.

Dr. W. H. Doherty—The essayist has referred to the incompetence, lack of appreciation of the necessity of asepsis, immorality, etc., as some of the human frailties occasionally expressed by the dentist and, if I understand him correctly, he advocated some system of government control to protect the public. I agree with the abstract principle that it would be desirable if I were entirely free from such conditions, but I cannot agree that government intervention is a possible remedy. My own opinion is that in the education of the public is at least a partial solution of the difficulty. When the public demand a high standard of professional training the careless dentist will be compelled to supply it and the public will also come to realize that high professional attainments and a lack of moral fibre do not go hand in hand in the uplifting of the dentist. I believe that the majority of dentists have failed to realize there should be cultural and ethical training. What the essayist speaks of is "the fine mechanical operations which have characterized us as mere artisans." There can be no question as to the value of culture for the dentist, both to himself and to the public. The error that commonly creeps in, however, is in the idea that the purely dental course is not so cultural in its nature as others, and that the so-called wholly technical nature of the study of dentistry, must be modified and "broadest," as the saying is, by the addition of certain studies and the extension of others for their cultural rather than for their actual "practical" value. In so far as this idea has been permitted to influence us I believe we have erred sadly and have been to a certain extent indirectly responsible for some of the sins of commission and omission to which the essayist has referred this evening, "mere artisans."

A dentist is called upon to be something of an artist, a sculptor, a surgeon, a skilled mechanic. This being the case, where is there a course leading to a university degree which is any broader and even as broad? Do we find the law school adding to their curriculum for the sake of culture, and even the medical school adding a course of lectures on dentistry to "broader" their course, as they well might do. On the contrary, they have been content to turn out graduates whose time has been spent entirely in fitting themselves to practice the specific calling upon which they have

entered, depending for the cultural element upon the study of the particular truths therein contained, seeking from the lower, the higher, and eventually the highest, which after all is perhaps what we mean by culture.

I see no reason why a man who has taken a thoroughly, yet purely dental course, given with the idea of bringing out its cultural and character-forming possibilities, should not with as much justice be termed a cultured gentleman as the graduate of any other faculty in any university.

I do not wish to be understood as meaning that I do not think that a broad knowledge outside of purely dental subjects is desirable in a dentist. I believe that the broader his knowledge the better, but in the interests of the public and in the interests of his own professional character it is of vital importance that he be able to do well what he undertakes to do when he begins the practice of dentistry. It is not desirable to attempt to teach man ethics and yet have him go out so ill-prepared that he knows he cannot do what he undertakes to do. Better send him out with the skill to perform a satisfactory operation and let him get the ethical and cultural training that will come from the knowledge of operations well and truly done.

At a recent meeting of this Society, Dr. Arthur Black made a statement that I have pondered over a number of times since. It was a broad statement, and yet I believe made advisedly and was as follows: He said that as he had studied the cases which came under his observation in school and society clinics and in his own office that he was of the opinion that more teeth are ultimately lost as a result of carelessness, neglect, lack of foresight on the part of dentists, than are permanently saved by our operations.

This statement, while it may at first glance seem broad, will not appear to be so when carefully thought over. How often we find that next to an imperfectly made shell crown caries have begun as a consequence and that an imperfectly contoured filling has caused the irreparable loss of the interproximal gum tissue. In this respect this branch of healing art is unique inasmuch as the very means we take to treat and cure a certain condition may, if improperly applied, not only fail to accomplish its purpose but bring about disastrous results to the adjacent tissue.

This being the case, if there is a duty the profession owes to the public and owes to itself it is to see that its members possess the very highest attainable technical skill, and I firmly believe that if this skill is sought after in the right spirit, the cultural and the ethical will largely follow as a natural result.

Dr. R. G. McLaughlin said that he had prepared to make some notes while Dr. Cunningham rapidly read his paper, but the style and composition became so interesting that he forgot all about making the notes; he rather deprecated that there should be governmental inspection of dental offices—it would be humil-

iating to the profession whose business it is to teach the public asepsis themselves to be inspected. The public look to the profession or its governing body to have a close supervision over such matters as asepsis. There is a subject which the essayist did not mention and that is the proper training of the profession in judgment. Many dentists give patients such improper advice that lasting deformities often occur. The Board of Directors should issue bulletins to the profession at regular intervals along the advanced lines of dentistry. Dr. McLaughlin was convinced that the Board should protect the public against the dentist who is insane; he gave an example in point which is as follows: "A dentist in this city a few days ago called upon a physician and asked him to come with him to the Western Hospital to witness a cure of ten patients; he said that the Lord had given him a vision, but the physician persuaded the dentist to wait until next day. The next day he arrived and told the physician that he had another vision which was in effect that the miracle would not take place until the following week." Such a dentist is a very unsafe man to be allowed to practice. If he should have a vision or command from the Lord to extract all of anybody's teeth or give them a lethal dose of any anaesthetic it would be too late then to take his license away. Such a man should not be permitted to practice.

Dr. A. W. Thornton agreed with Dr. Secombe that it would be difficult to discipline a dentist under the by-law against drunkenness because it would be hard to decide how much drunkenness ought to disqualify a dentist for practice. There were some very good practitioners in the Province of Ontario who occasionally took alcohol to excess, and it would be hard to say that these men were not qualified to practice dentistry.

While it is exceedingly important to keep a dental office perfectly clean, yet Dr. Thornton said that absolute asepsis in dentistry was an impossibility. If every dentist had an assistant who was trained in asepsis there would be little difficulty in this respect, but so long as the dentist undertakes to disinfect his own instruments and look after his own practice, his office would hardly be up to the standard demanded by modern knowledge of this subject. The mere statement by the authority quoted by the essayist that more injury is produced by bad teeth than by alcohol, does not necessarily make it a fact—such statements are only the opinion of an individual and cannot be based upon facts. So far as ethics is concerned it makes no difference how many laws we have or how many codes of ethics we may have, if a dentist has not the elements of honesty within he will not carry out the rules of any code of ethics, but if he loves his fellow man he will need no other code, and he will certainly not use unclean instruments.

Dr. A. E. Webster said that he opened the discussion at the Canadian Dental Association in Montreal in which Dr. Lennox Curtis read a paper recommending that dental offices should come under governmental supervision and at that time he opposed the idea of

such an inspection very strenuously, but he thought that Dr. Cunningham had not recommended governmental inspection, but said that unless the profession took great pains to keep the standing of the profession above criticism it would be quite possible that the government would be compelled to take some action. He also said that he was pleased with what Dr. Seccombe said in regard to new by-laws when necessity demanded them, and also that unclean offices would rightly come under the jurisdiction of the discipline committee, but he was sorry he did not feel inclined to go the whole way and admit that the discipline committee should take charge of those who became incompetent because of drink, drugs or insanity. Our regulations compel a man to have a good moral character before he gets his license, but it has nothing which compels a dentist to give up his license when he loses the qualifications he had when he obtained it. It might be perfectly safe for a man of doubtful mental balance to run a lawn mower or dig in a ditch, but when he has the special privilege of practising dentistry he may become a menace to the public. Dr. Webster admitted the great value in raising dental standards by educating the public to demand higher professional skill, but it seemed rather a peculiar admission that the public should educate the dentist in his own calling. Dentists usually do not accept dictation from their patients upon such matters.

Dr. W. G. L. Spauldings said that while it was necessary to consider drink, drugs and insanity as entities, yet they were only a part of general health. Every dentist should have a health consciousness which would deliver him from doing anything which would interfere with his own or his patient's health. Unfortunately, dentists as a class are not readers. His occupation is so confining and exacting on eye and brain that he has not the desire or the strength to read at night when through a long, arduous day's work, which all dentists find necessary to make a living. He thought it wise that a dentist should give much of his effort to maintaining his health because when tired he cannot give the best service to his patient. In closing, he complimented the essayist on his vigorous health.

Dr. Thornton arose to challenge the statement made by Dr. Black at the last meeting, and quoted by Dr. Doherty, that as much harm as good is done by the dentist. Because a man makes a statement it does not follow that it is true. In contradiction to Dr. Black's statement there seems to be irrefutable evidence that the teeth of the people of this continent are better than those of any other country in the world. This is attributed to the high skill of the dentists of America.

Dr. A. W. Ellis gave an instance where a barber was fined for transmitting barber's itch. The judge said this barber had exceptional responsibilities because he called himself the "antiseptic barber." In this way, if dentists fitted their offices with aseptic equipment they would take additional responsibilities. He

thought the Ontario Dental Act to be quite strong, but with its strength it brought responsibilities. The public expect the dentists to look after the teeth of the people. In this province there are about a thousand dentists, and it is agreed that one dentist cannot look after the teeth of more than six to eight hundred, which would mean that not more than 800,000 of the two and a half millions of people in this province have their teeth looked after at all. The dental profession, in Dr. Ellis's opinion, had a responsibility in this direction.

Dr. G. G. Jordan said he had a son about 10 years old in whom he tried to instil the ideas of prophylaxis and general cleanliness, but like most boys of his age he had relapses. A few days ago he brought a note home from school in which the teacher said he had to keep his boots shined. If the public schools demand clean shoes for appearance' sake why should they not demand clean teeth for health's sake?

Dr. G. W. Grieve congratulated the essayist on the character of his paper and expressed the view that it would be of great value to the profession. He thought bulletins should be sent out regularly to the public and the profession.

Dr. Cunningham, closing, said he was pleased with the many expressions of appreciation of his efforts and especially with what seemed to be a strain of opposition in certain directions. The idea of the paper was to stimulate thought. Dr. Secombe said that dentistry needed no more of an uplift than any other of the professions. To this he would say that it would do dentistry no harm to lead the way for other professions. A good number of those discussing the subject took exception to government inspection of dental offices, but he was pleased that he had not recommended it, but said that unless the profession adequately protected the public itself the government might be compelled to step in. In other words he said we should do our own house cleaning. Dr. Secombe said it would be difficult to discipline for drunkenness, but Dr. Cunningham said in reply that railways not only discharged employees for drunkenness but for being drunk. Such employees are considered incompetent. There is no complaint in the courts from such action. It is accepted by all. Why should it not be much more true in dentistry? In closing, Dr. Cunningham thanked the Society for their invitation to read his paper and for the kind expressions of appreciation.

Dr. R. G. McLean moved a vote of thanks to the essayist of the evening, and Dr. Spaulding seconded it.

DENTAL HYGIENE AND ITS RELATION TO HEALTH.

By Richard G. McLaughlin, D.D.S.

(Read before the Ontario Educational Association, March 30, '10)

Ladies and Gentlemen,—I esteem it a privilege to have this opportunity of addressing you on a subject of such importance and so far-reaching in its effects as the one forming the title of this paper. The teaching profession and the dental profession, although seemingly far separated in their lines of work, after all are aiming at a common goal, namely, the fitting of men and women physically and mentally to do the best work of which they are capable throughout life. Just how much the physical and mental efficiency of an individual depends upon the condition of his teeth and mouth is the subject under discussion in this paper, and in placing this matter before you I shall endeavor as far as possible to avoid the use of terms that are of a technical nature.

The close relation existing between physical health and mental activity was never more emphasized than to-day. In order that a man be at his best and fit to do his best work, every organ in the body must be perfectly healthy and so able to perform its natural functions. Each organ in this wonderful human machine is dependent to a greater or less extent for its health, its power and its efficiency on every other organ in the same body. For example, a dyspeptic can never be the strong man mentally, physically, socially and morally that he would have been had his stomach been in a normal condition. It has been stated that Napoleon lost the battle of Waterloo because of over-indulgence that morning in his favorite dish of fried potatoes. Investigation has disclosed the fact that when the mummy of Rameses II, known in history as the Pharaoh of the oppression, was examined, it was clearly manifest that that tyrant ruler must have suffered greatly because of decayed and diseased teeth. Medical science is inclined to attribute much of his cruelty to this fact. Be this as it may, the important point is that modern scientific research and observation have proven undoubtedly that many of the ills of the human race, both physical and mental, can be traced directly to an unclean and diseased oral cavity. Nor are we surprised at such a conclusion when we consider the fact that the mouth is the gateway or vestibule to the whole body. Through it must pass the food and in many cases the oxygen that goes to nourish and build up the body.

There are few outside the medical and dental professions who know what a complex network of nerves and blood-vessels run out from the teeth and jaws. These nerves, which are intimately related to the brain, act and react upon the whole nervous system. It must follow that any disturbances or derangements of the

nerves of the teeth produce a sympathetic derangement in the higher nerve centres and so not only the physical organs such as the kidneys, liver and stomach suffer, but the intellectual faculties as well. The common idea that a violent toothache is the ultimate penalty nature will exact for neglected and decayed teeth is one of those delusions which recent research has swept completely away. Holding as they do such a strategic position at the entrance to the alimentary canal and respiratory apparatus, and so intimately connected with the nervous system, the teeth truly dominate the whole organism of man.

The functions of the teeth may be considered as three-fold: to give contour and expression to the face, to assist in articulation and to masticate the food. It is with the function of mastication that we are particularly interested at this time. This is the first step, and in the case of some of our food, the important step in the process of digestion. Food to be properly masticated and prepared for the fluids of the stomach must not only be crushed and ground into small particles by the teeth, but, what is just as important, should be held and worked in the mouth long enough to be thoroughly mixed with the saliva. Especially is this so with such common everyday foods as bread and potatoes, which contain a considerable amount of starch. Now starch is an element of food which requires saliva in abundance for its proper digestion. Saliva has the property of converting it into glucose or sugar, and as such forms a large part of our nourishment. Now the point is this; if in the mouth this first important step in digestion is to be properly performed so that the stomach be not unduly burdened, how urgent it is that the teeth be in good sound condition, free from any soreness and properly articulated. Bolted food, or food not properly prepared by the teeth and saliva is looked upon today by the medical profession as the direct cause of a large percentage of stomach troubles. Dr. William R. Woodbury, of Boston, Mass., is the authority for the statement that eighty per cent. of the cancers of the stomach are due to bolted food. If day after day and week after week a quantity of food, not properly prepared, be taken into the stomach, that organ will no doubt in time rebel and we have indigestion, dyspepsia and the whole train of troubles that naturally follow.

Let us look for a moment why so much of our food is only partially prepared in the mouth before passing into the stomach. As one writer very tersely puts it, "man eats along the lines of least resistance," which interpreted simply means that if a tooth on one side of the jaw is decayed and sore, he will not make use of that side of the mouth to masticate his food. Now, if he is still neglectful and one or two teeth on the other side become troublesome he will not use that side either, and so the food is merely rolled round with the tongue and cheek for a moment and so on and then bolted. With this badly prepared food the stomach and other digestive organs must do the best they can. The

result is a two-fold injury. First, the body is robbed of part of the nourishment it should have extracted from that food, and second the eliminating organs, such as the kidneys, are over-taxed to rid the body of the extra poison consequent upon faulty digestion. Again, not only does this half-hearted mastication result in serious complications to the general system but is injurious to the teeth themselves. This soft food being rolled round by means of the tongue and lips naturally leaves the teeth coated with a film of the mass making a splendid resting place for the work and growth of micro-organisms which promote further decay of the tooth structure.

As long as we persist in tickling our palates with sloppy foods, jellies, angel cakes and so-called pre-digested foods we must make up our minds to have poor teeth and weak stomachs.

If we examine the skulls of the primitive inhabitants of this land we will find, generally speaking, a well developed muscular jaw with a full contingent of fairly sound teeth, set in a firm socket of bony tissue. The question arises: Why does not man to-day possess such an enviable masticatory apparatus? The answer is a simple one. Our jaws, teeth and muscles of mastication have deteriorated for want of use. The food of the savage was of such a character as to require vigorous mastication before it could be comfortably swallowed; dried or partially cooked meat and hard, coarse bread or cake. To masticate such food would not only build up strong healthy teeth and jaws, but the constant rubbing of this hard food over the teeth during the process of mastication would help to keep them free from all accumulation and so cleanse the teeth as to prevent decay. The important point to be remembered is simply this: If we would have better teeth and better digestion, then we must see to it that at least a portion of the food of each meal is of such a character as to require considerable mastication and that all our food is thoroughly masticated before it is allowed to pass into the stomach.

Mr. Horace Fletcher is to-day making strong claims as to the value of thorough mastication in the prevention and cure of many general diseases. His own personal experience in this matter added to the testimony of many others since that time gives considerable weight to his system of dieting. If you have not read Fletcher on this subject I think it would be quite worth while. His doctrine is sound through and through, that the man who does not properly use his teeth is sinning grievously against both body and brain.

But the evils which follow imperfect mastication are by no means the only ones arising from decayed and diseased teeth. The mouth that contains many such disabled molars presents an ideal harbor and breeding place for germ life. Here we have the necessary moisture, heat and undisturbed food in the cavities and round the necks of loose and sore teeth to give the micro-organisms every opportunity to flourish and get in their deadly work.

Moreover, the infectious matter thrown off by decayed teeth is of a particularly virulent character as it is similar to that of diseased bone. The medical profession to-day is almost unanimous in its opinion that many of the infectious diseases of the body can be traced directly to a diseased and unsanitary mouth. When we understand the many dangers lurking in unclean and ill-kept mouths we do not wonder at this conclusion. That many species of the most poisonous germs are to be found lurking in decayed teeth has been fully demonstrated by Miller and other bacteriologists.

This continual swallowing of these germs and decayed matter from diseased teeth and foul roots carries disease to every part of the body. Dr. William Hunter, of Charing Cross Hospital, London, states that his observation and experience has proven that such local diseases as tonsillitis, pharyngitis and inflammatory condition in that region can frequently be traced to a septic condition of the teeth and mouth. Also a hollow tooth having a dead pulp has been the means of conveying the germ of tuberculosis to the lymphatic glands of the neck resulting in tubercular abscesses. In the fight against this dread disease, "The White Plague," it is most important that the teeth should be sound, properly arranged for good mastication, and well kept.

Again, to go a little farther from the region of the mouth, we find that the constant swallowing of the septic matter arising from decayed teeth is a direct cause of disturbances and diseases of the deeper digestive organs. It is true that the gastric juice of the stomach will in its normal condition take care of much of this foul matter and these pus organisms from decayed teeth and foul abscesses; but we must remember in most cases the supply is constant and by degrees the tone and resisting power of the gastric juice is lowered—becomes in fact gradually infected—and so fails in the performance of its digestive function. This results in indigestion, dyspepsia, constipation, ulceration of the stomach, septic catarrh and all the evils arising from a disabled and diseased digestive apparatus.

In the great majority of these stomach troubles the physician to-day is looking to the mouth of the patient both for the cause and the cure. Drugs can be of no avail till the teeth are put in a sound and sanitary condition. Many cases are on record which fully demonstrate the force of this statement. Let me mention one or two which have come under my own observation.

Case 1. A young lady had for some three or four years been suffering from ulceration of the stomach. Her condition was gradually becoming more serious, she became weaker and was under the constant care of her physician. Upon examining her mouth I found her lower back teeth were all so decayed that nothing remained but rotten and diseased roots. These were so sore and the gums so inflamed that no attempt was made at proper methods of cleansing. Here I felt satisfied was a source of seri-

ous infection. The patient was physically so weak that the operation of extraction was attended with considerable risk. However, the diseased roots were in time all removed, an antiseptic mouth wash prescribed and as soon as possible the patient supplied with artificial teeth for the work of mastication. It was quite noticeable that as soon as the mouth was put in a healthy condition the patient showed signs of improvement and inside of twelve months was about her duties as usual. Since that time, which was some years ago, there has been no signs of recurrence.

Case 2. A little girl between 5 and 6 was brought to the office suffering from toothache. For a child of her age she presented a decidedly emaciated appearance. It was clearly a case of poisoning of the system from some source. She had the ashy-grey color and even at that age was a sufferer from indigestion. Upon examining her mouth I found all her back teeth were more or less decayed, some with exposed nerves or pulps and also 5 or 6 abscesses, from which pus was continually oozing into the mouth and of course taken into the stomach with every mouthful of food. Was it any wonder the child was a dyspeptic, in general bad health and unfit for her school duties? It took some weeks to restore that mouth to even a fair condition; but as soon as the foul matter and pus was gotten rid of and the child could again masticate her food with comfort, her health and spirits began to return.

If time and space permitted, many similar cases could be cited of the general health being undermined by infection from an unclean mouth.

Apart from these local effects or digestive disturbances which so frequently result from decayed teeth, there is always a danger of these pus organisms and this foul matter from the mouth being absorbed into the blood itself, and if allowed to continue will gradually lower the vitality and resisting power of the whole body. In such cases there may be no definite local manifestation of the deadly process, but there is, as Dr. Hunter states: "The dirty ashy-grey look and general languor, irritability, feelings of intense depression which are constantly found associated with those cases of oral sepsis, sometimes of the profoundest character." Thus the same authority states that many cases of pernicious anemia, profound septicemia and serious nervous disturbances coming under his own observation have been traced to a constant infection arising from a foul and diseased mouth.

Now if, as we have concluded, a diseased and unsanitary condition of the mouth is so far-reaching in its effects as to upset the whole human machinery, what effect must it have on the physical and educational progress of the boys in our schools? Simply this, that a boy who has bad teeth is handicapped both physically and mentally. No doubt one of the difficult questions you have before you at this convention is that of the backward pupil we find in every school. The educational world is just awakening to the importance of subjecting these laggards to a rigid medical and dental

examination. The educational board of Toronto has gathered 117 of these laggards and appointed a medical practitioner to report on the physical condition of each. It is possible that a dentist will also be asked to examine the mouths and teeth of these children, and it is safe to predict that a large percentage will be found to be "dental cripples."

In educational circles to-day it is generally conceded that the backwardness found in many of the school children is due largely to some physical defect. In many of the large cities of the United States this matter has been taken up with a good deal of vigor. The children in many of the schools in New York, Boston, Philadelphia and Chicago have been subjected to a close medical examination, not only as to their general health, but as to the condition of their teeth and mouth. As a result it has been found that from 67 per cent. to 98 per cent. of the children in different schools have decayed or defective teeth.

Dr. William A. Evans, commissioner of health for the city of Chicago, stated in a recent public utterance that as a result of a medical examination of the school children of that city 44,000 were found to have defective teeth. In other countries such as Germany, England, France, where the matter has been investigated, the same lamentable condition prevails. Now the serious point is this, that if the percentage of children in our schools having defective teeth runs up as high as 98 we could naturally conclude that fully 50 per cent. would present mouths in such a serious condition as to affect their physical development and educational progress. Observation has also shown that children whose mouths are unclean and diseased to such an extent as to affect the nervous mechanism are not so amenable to school discipline; in fact many become not only ungovernable, but actually criminal. Now, such a child is not having a fair chance. It is no fault of his that he carries this handicap. He may have as much native ability and good nature as the boy next to him. We must conclude that those responsible for that boy's education and future are not giving him a square deal. The parents, the municipality and the school authorities, who are the responsible parties, should see to it that no boy or girl in our school is allowed to labor under such a serious handicap.

Germany, perhaps, leads the world in looking strictly after the health of her children in the schools. For years she has insisted that pupils undergo periodical examination of their teeth and present a certificate, either from the family dentist or the public clinic, that their teeth are in good condition, and as a result there has been a marked improvement in the health, scholarship, morals and discipline of the school children. Germany has proven for the whole world that such oversight and assistance has been a wise investment. She has fewer laggards in her schools, fewer in the hospitals, better discipline, and all resulting in a higher class of citizens.

Let me give you just one illustration in support of what I have been placing before you, a case from the Children's Aid Society of New York. I quote this from an article written by Dr. J. O. McCall, of Buffalo: A young girl of eleven years appeared almost incorrigible and wholly unmanageable in school. Upon investigation it was found she had only two sound teeth in her mouth, all the others being badly diseased. She was at once sent to the dental clinic established for these children and her teeth put in good condition. At once there was noticed a marked improvement in her physical health, her studies and her deportment. That same pupil was afterwards referred to by the teacher as the model pupil in the school.

Now, if as has been shown, such a large percentage of our school population are suffering to a greater or less extent from such a serious handicap we ought to and must ask ourselves—what is the remedy and who are responsible for its application?

First: The children in our schools must be regularly instructed in the importance of having good teeth, and how to properly take care of them. To be capable of imparting such instruction the teacher must know more, vastly more, about the teeth, their structure, their functions, their diseases and their proper care than she is expected to know to-day.

This would mean a full course of instruction on dental hygiene in the normal schools of the Province. I can assure you that the dental profession will be only too glad to assist the teaching profession in such a course of instruction. Already in many of these normal schools some little attempt has been made towards such a course.

Second: Periodical inspection of school children's teeth by dentists should be insisted upon by the school authorities. This is already being carried out to good advantage in many large centres. In the municipality of Strassburg, Germany, every child on coming to school is compelled by a city ordinance to present to the teacher a certificate from a physician and dentist, giving information as to the general health and condition of his teeth. If the child needs medical or dental attention he is sent to the regular practitioner or the infirmary, which is supported by the municipality. The German Government, in pursuing this course, keeps the children in good physical condition and well equipped for school work.

Austria, France, Switzerland, England and Australia have also in recent years been paying special attention to dental and oral hygiene in relation to school children. The United States is now turning itself with a good deal of vigor to the solution of this problem. Professor Witmer, of the department of psychology at the University of Pennsylvania, has been making a special study of the causes of intellectual backwardness in school children. He reports that a large number of these laggards present mouths

and teeth so defective and diseased as to be wholly incapable of performing the work nature has intended them to do.

Also let me state here that I believe in the board of education of Toronto a movement is now under discussion to appoint both a physician and dentist whose duties shall be to make periodical inspections of the school children as to the condition of their general health and teeth.

Third: In large centres of population dental clinics supported by the municipality should be established to look after the teeth of those children whose parents are not financially able to pay the regular fees of the family dentist. By this means the child of the poor man may have an even chance with the child of the rich. Many of our larger cities are already looking after the poor children in this respect. In 1908 Cleveland paid for the care of the teeth of 1,500 school children, the services of the dentist being given free. Other American cities, as Rochester and New York, are doing similar work.

The city of Strassburg, to which I referred before, has a dental infirmary in connection with her schools, established since 1902. This clinic is now conducted in a special building erected for the purpose at a cost of \$60,000, and Germany finds that it pays. It helps materially to produce a better class of citizen, and a nation's best assets are her men and women, well developed physically, mentally and morally.

If this much-needed reform is to be accomplished in this good land of ours; if our school children are to be relieved of this serious handicap, it must be done by the hearty co-operation of the teaching profession, the dental profession and the municipality. And I can assure you that in all or any part of this work you may rely upon the support of the dental profession of this Province.

ELECTRICITY IN DENTISTRY.

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CHAPTER IV.

Interior Wiring.

In the preceding chapters we have considered the elementary features relative to the generation and transmission of electricity. We have seen the peculiar property exhibited by the pressure or voltage, and how that pressure is always ready to act if the source of its generation is in working condition. We have seen how this potential acts throughout a distribution system and how that system controls it. We have also seen the effect of completing the circuit to which the pressure has been applied; the result being a

flow of current limited in amount by the amount of resistance in the circuit. And the intensity of the voltage between any two points in the circuit is influenced by the size of the current flowing through a given system which, as explained in Chapter I, causes the voltage to fluctuate. It is the aim in the more up-to-date systems to keep this fluctuation as small as possible, and where there are different systems available, the dentist should obtain that one which will give the more constant voltage.

It has been the aim in these chapters to give sufficient theory (in as elementary a form as possible), so that the reader may understand why it is necessary to follow definite plans in the adaptation of electricity in the dental office. Few realize the importance of correct installations; and poor results in the use of good electrical appliances can be traced, in most instances, to incorrect methods used. In the work of every artisan there are certain factors which must never be overlooked, and certain conditions which must always be fulfilled before the final object of the work can be reached, and it is well that the dentist be sufficiently familiar with the work to know that the electrician has performed it properly. This knowledge is of most value to men located away from the large centres, where competent electricians are not easily obtainable.

In the wiring of an office, the ultimate object is the conveying of the electricity to the engine, lathe, lamp, heaters or other devices directly or through a switchboard, but this must be done in a proper manner or otherwise danger, unsatisfactory operation and waste are sure to result.

Safety, satisfactory operation, convenience, neatness and economy are the things that should be considered. The first two of these are by far the most important. It is therefore well to understand what are the sources of danger in the use of electric currents; then what precautions are necessary and what conditions must be complied with to avoid these dangers. In all wiring, special attention should be paid to the mechanical execution of the work, careful and neat running, connecting, soldering, taping of conductors, and securely attaching fittings are specially conducive to security and efficiency, and where this is followed to the letter, there need be absolutely no fear in the use of electricity.

In laying out a system of wiring for the office, every reasonable effort should be made to secure a distribution centre located in an easily accessible place where the cut out and switches controlling the several branch circuits can be grouped for the safety and convenience of operating. All complicated and unnecessary wiring should be avoided. For this reason, manufacturers interested in electrical equipments for dentists have designed switchboards, the use of which eliminates to a great extent the sources of danger through improper installation. As electricity of 110 volts is almost universally used for house lighting, the danger to life is unnecessary of consideration. But nevertheless, although it

may not be directly dangerous to life, there are conditions under which an electric current of this voltage may cause fire.

The so-called electrical fires, or fires that are caused by the presence of electrical wire within a building, may be divided into the following classes:

(a) Fires caused by poor work or improper materials.

(b) Fires caused by overloading a wire with more current than that which it should safely carry.

(c) Fires caused by lightning striking the outside lines, or by the crossing of circuits that should never come into contact with one another.

A good job of wiring overcomes all danger due to the first two of these sources, and the lighting company, through the use of proper lightning arrestors, prevents the occurrence of that due to the third cause.

National Electric Code.

When electric lights first came into general use, the insurance companies discovered that there were many fires of electrical origin due to inferior workmanship done on the installation. The various associations of underwriters, therefore, formulated rules in accordance with which they required that all wiring be done, or they would not insure buildings containing it. These various rules have since been reduced to a uniform code, and in 1898 they became known as the National Electric Code, and received the endorsement of all the inspection bureaus.

Although a few cities have rules of their own, yet, if the rules as set forth by the National Electric Code be followed, the wiring will to all intents and purposes, be found safe. Copies of the code and of all other information published by the Underwriters' Association for the sake of reducing the fire hazard, can be had by writing to the Canadian Fire Underwriters' Association, Toronto. The rules have been revised by conventions as often as changes in the electrical art make such provisions necessary.

Care Exercised.

In performing any electrical installation, conductors, however well insulated, should always be treated as bare to the end that under no conditions existing or likely to exist, can a ground or short circuit occur, and so that all leakage from conductor to conductor, or between conductor and ground may be reduced to a minimum. The following are a few of the general rules especially applicable to the dental office.

Wires.

(a) Wires must not be of smaller size than No. 14 B. & S. gage, except as allowed for fixture work and pendant cord.

(b) Tie wires must have an installation equal to that of the conductors they confine. For smaller wires than No. 8 B. & S.

gage, split knobs or cleats shall be used except at dead ends, and tie wires and knobs will not be approved.

Screws must be used for fastening all cleats and knobs which are arranged to grip the wire.

(c) Must be so spliced or joined as to be both mechanically and electrically secure without solder. The joints must then be soldered unless made with some form of approved splicing device, and covered with an insulation equal to that on the conductors.

Stranded wires (except in flexible cords) must be soldered before being placed under clamps or binding screws, and whether stranded or solid, when they have a greater conductivity than that of No. 8 B. & S. gage they must be soldered into lugs for all terminal connections, except where an approved solderless terminal is used.

(d) Wires must be separated from contact with walls, floors, timbers or partitions through which they may pass by non-combustible, non-absorptive, insulating tubes, such as glass or porcelain, except at outlets where approved flexible tubing is required.

Bushings must be long enough to bush the entire length of the hole in one continuous piece, or else the hole must first be bushed by a continuous waterproof tube. This tube may be a conductor, such as iron pipe, but in that case an insulating bush must be pushed into each end of it, extending far enough to keep the wire absolutely out of contact with the pipe.

(e) Must be kept free from gas, water, or other metallic piping, or any other conductor or conducting material which they may cross, by some continuous and firmly fixed non-conductor, creating a permanent separation. Deviations from this rule may sometimes be allowed by special permission.

Where tubes are used they must be securely fastened at the ends to prevent them from moving along the wire.

(f) Must be so placed in wet places that an air space will be left between conductor and pipes in crossing, and the former must be run in such a way that they cannot come in contact with the pipe accidentally. Wires should be run over rather than under pipes upon which moisture is likely to gather or which, by leaking, might cause trouble on a circuit.

Table of Carrying Capacity of Wires.

B. & S. G.	Rubber Insulation Amperes	Other Insulation Amperes
18	3	5
16	6	8
14	12	16
12	17	23
10	24	32
8	33	46

Switches, Cut-Outs.

(a) On account of potential circuits, all service switches and all switches controlling circuits supplying current to motors or heating devices, and all fuses, must be arranged so that the fuses will protect and the opening of the switch will disconnect all wires; that is, in the two-wire system, the two wires, and the three wire system the three wires must be protected by the fuses and disconnected by the operation of the switch.

When installed without automatic overload protective devices automatic overload circuit breakers must have the poles and trip coils so arranged as to afford complete protection against overloads and short circuits, and if also used in place of the switch must be so arranged that no pole can be opened manually without disconnecting all wires.

(b) Must not be placed in the immediate vicinity of easily ignitable stuff or where exposed to inflammable gases or to dust or to flyings of combustible material.

When the occupancy of a building is such that switches, cut-outs, etc., cannot be located so as not to be exposed to dust, or flyings of combustible material, they must be enclosed in approved dust-proof cabinets with self-closing doors.

Switches.

(a) Must be placed on all service wires, either overhead or underground, in the nearest readily accessible place to the point where the wires enter the building, and arranged to cut off the entire current.

Service cut out and switch must be arranged to cut off current from all devices, including meters.

(b) Must always be placed in dry, accessible places, and be grouped as far as possible. Single throw knife switches must be so placed that gravity will not tend to close them. Double throw knife switches may be so mounted that the throw will be either vertical or horizontal as desired.

When practicable the switches must be so wired that the blades will be "dead" when the switch is open.

When switches are used in rooms where combustible flyings would be likely to accumulate around them, they must be enclosed in dust-proof cabinets.

Electric Heaters.

(a) Must be protected by a cut-out and controlled by indicating switches. Switches must be double pole except when the service controlled does not require more than 600 watts of energy.

(b) Must never be concealed, but must at all times be in plain sight. Special permission may be given in writing for departure from this rule.

(c) Flexible conductors for smoothing irons and sad irons, and for all devices requiring over 250 watts must have an approved insulation and covering.

(d) For portable heating devices the flexible conductors must be connected to an approved plug device, so arranged that the plug will pull out and open the circuit in case any abnormal strain is put on the flexible conductor.

(e) Smoothing irons, sad irons, and other heating appliances that are intended to be applied to inflammable articles, such as clothing, must conform to the above rules so far as they apply. They must also be provided with an approved stand, on which they should be placed when not in use.

(f) Stationery electric heating apparatus, such as radiators, ranges, plate warmers, etc., must be placed in a safe location, isolated from inflammable materials, and be treated as sources of heat.

(g) Must be provided with name-plate, giving the maker's name and the normal in volts and amperes.

Low Potential Systems.—Wires.

(a) Where entering cabinets must be protected by approved bushings, which fit tightly the holes in the box and are well secured in place. The wires should completely fill the hole in the bushings so as to keep out the dust, tape being used to build up the wires if necessary. On concealed knob and tube work approved flexible tubing will be accepted in lieu of bushings, providing it shall extend from the last porcelain support into the cabinet.

(b) Must be laid in plaster, cement, or similar finish, and must never be fastened with staples.

(c) Must not be fished for any great distance, and only in places where an inspector can satisfy himself that the rules have been complied with.

(d) Twin wires must never be used, except in conduits or where flexible conductors are necessary.

(e) Must be protected on side walls from mechanical injury. When crossing floor timbers in cellars, or in rooms where they might be exposed to injury, wires must be attached by their insulating supports to the under-side of a wooden strip not less than one-half inch in thickness, and not less than three inches in width. Instead of the running boards, guard strips on each side of and close to the wires will be accepted. These strips to be not less than seven-eighths of an inch in thickness, and at least as high as the insulators.

Protection on side walls must extend not less than five feet from the floor and must consist of substantial boxing, retaining an air space of one inch around the conductors, closed at the top (the wires passing through bushed holes) or approved metal conduit of pipe of equivalent strength.

When metal conduit pipe is used, the insulation of each wire must be reinforced by approved flexible tubing extending from the insulator next below the pipe to the one next above it, unless

the wire is approved for conduit use. The two or more wires of a circuit each with its flexible tubing (when required), if carrying alternating current must, or if direct current, may be placed within the same pipe.

(f) When run in unfinished attics, will be considered as concealed, and when run in close proximity to water tanks or pipes, will be considered as exposed to moisture.

In unfinished attics wires are considered as exposed to mechanical injury, and must not be run on knobs on upper edge of joists.

In Dry Places.

(g) Must have an approved rubber, slow burning, weather-proof, or slow-burning insulation.

(h) Must be rigidly supported on non-combustible, non-absorptive insulators, which will separate the wires from each other and from the surface wired over in accordance with the following table:

Voltage.	Distance from Surface.	Distance between Wires.
0 to 300	$\frac{1}{2}$ inch	$2\frac{1}{2}$ inches
301 to 550	1 inch	4 inches

Rigid supporting requires only ordinary conditions, where wiring along flat surfaces, supports at least every $4\frac{1}{2}$ feet. If the wires are liable to be disturbed, the distance between supports must be shortened..

The neutral of an Edison three-wire system may be placed in the centre of a three-wire cleat where the difference of potential between the outside wires is not over 300 volts, provided the outside wires are separated two and one-half inches.

Must not be dead ended at a rosette socket or receptacle unless the last support is within twelve inches of the same.

In Damp Places.

(i) Must have an approved insulated covering.

For protection against water, rubber insulation must be used. For protection against corrosive vapors, either waterproof or rubber insulation must be used.

(j) must be rigidly supported on non-combustible, non-absorptive insulators, which separate the wire at least one inch from the surface wired over, and must be kept apart at least two and a half inches for voltages up to 300, and four inches for higher voltages.

For Moulding Work.

(k) Must have an approved rubber insulating covering, and must be in continuous lengths from outlet to outlet, or from fitting to fitting, no joints or tape to be made in moulding. Where branch taps are necessary in moulding work approved fittings for this purpose must be used.

(1) Must never be placed in either metal or wooden moulding in concealed or damp places, or where the difference of potential between any two wires in the same moulding is over 300 volts. Metal mouldings must not be used for circuits requiring more than 600 watts of energy.

(m) Must for alternating current system if in metal moulding, have two or more wires of a circuit installed in the same moulding.

Examples of Electrical Fires.

It might be interesting to note the causes of some of the fires as taken from the quarterly fire reports of the National Board of Fire Underwriters.

(1) Loose connections in a show window. Arc ignited insulated covering of wires and fire spread to surrounding inflammable material. Explanation—Where there is a loose connection it means a high resistance as the current passes through a thin filament of air and, as explained in Chapter I (the heat generated depends upon the resistance), and as this heat is concentrated to a single point, it means a high temperature at that point and flame likely to occur if combustible materials are present. A screwed or soldered connection, then, is of the utmost importance, and simply twisting two wires together is dangerous.

(2) Short circuit caused by metallic shell or socket in show window of a millinery store, establishing short circuit between projecting ends of flexible fixture wire.

(3) Parafin-covered wire used for pendants for drop lights. Wire installed on a motor circuit after inspection by occupant of building who wished to secure light. Short circuit ignited parafin covering and whole building burned.

(4) A 16-C.P. lamp on a 52 volt circuit was left lying on an office coat. About four hours after the light had been turned on the coat was discovered smouldering, and, on being moved, burst into flame.

(5) Flexible lamp cord wound around a gas fixture having a soft rubber insulating joint. The current grounded through the joint and the arc ignited the escaping gas.

(6) Short circuit caused by moisture. Fuses which were too large did not melt for some time and the burning of the insulated wires set fire to inflammable material near, causing a loss of \$15,000.

(7) A fuse block improperly constructed and placed in close proximity to the wood-work, held an arc after a short circuit long enough to set fire to the woodwork.

(8) Short circuit of No. 14 wires installed contrary to rules, in moulding in a place exposed to moisture. The fire was stubborn and burned fitfully between floors and was not put out till a loss of \$2,000 had been sustained.

(9) Building wired throughout with weatherproof wire run

through joists without bushings, both wires being brought through one hole without separation. Short circuit occurred in attic and quickly set fire to dry timbers.

(10) Circuit controlling an electric flat iron was left on, becoming overheated, setting fire to table. Circuit had no signal lamp or other indicating device recommended for such equipment.

(11) Ground of 110 volt circuit on gas pipe in attic. Arc burned $\frac{1}{4}$ inch hole in pipe and set fire to escaping gas.

From the foregoing examples the importance of good wiring is forcibly shown.

In the next issue lessons on wiring will be continued, dealing more in detail with that recommended for the dental office, special attention being given to the switchboard, its construction and use.

SOME DETAILS IN A CASE OF PYORRHOEA.

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A good deal has been said from time to time of the possibilities of cutting the cementum of a tooth in attempts to remove calculus. The accompanying cut was made from a tooth which has



been treated for pyorrhoea once every year or so for the past fifteen years. It shows many deep furrows cut with instruments, and in some of these calculus has been deposited. There are deposits covering the apex as well as between the roots. If we hold the theory that deposits only occur where there is some previous roughness on the tooth's surface, then scratches from instruments must be a menace to the future comfort of the tooth. If we hold that deposits are of constitutional origin, it matters little whether there are scratches on the root surface or not, because the deposits will be made anyway, the roughness only acting as a point of location.

The minute history of the onset and the progress of the disease in this tooth may not be uninteresting, inasmuch as few have had a better opportunity to study such cases than the writer. It is the history of almost all such cases, and yet few dentists realize the significance of the many conflicting symptoms. The patient has a bad family history so far as pyorrhoea is concerned. Father lost almost all of his teeth before sixty years of age from the disease; mother has not lost all of her teeth at seventy-six years of age. In 1885 deposits appeared on the patient's teeth. 1889, severe marginal gingivitis occurred on the lower incisors together with some pus pockets. The lower molars showed marginal gingivitis and deposits on the lingual and proximal surfaces. In 1886 the pulps were devitalized in the lower right first and second molars and fillings inserted, which bridged between the two teeth. A month or so later an interstitial gingivitis occurred, and the fillings were sawed through to the gum, allowing drainage and a final recovery. In 1888 the pulps, which had not been removed when devitalized, became infected and a pericemental infection occurred, which was treated by the removal of the fillings and the insertion of two others which covered pledgets of cotton which had been previously dipped in creasote. These fillings also rested upon the gum septum and allowed food to wedge in between the teeth. In 1891 the fillings were removed and the roots properly treated and filled and fillings inserted which in a measure protected the gum septum. In 1899 food again began to wedge between the teeth, owing partly to a loss of space for contour on the previous fillings. A pericementitis also occurred. The root fillings were removed and it was found that the openings of the roots at the apices were so large that there was a constant weeping of serum from the tissues at the apex. As soon as asepsis was secured, but not dryness, a pledget of cotton, first dipped in creasote and then in vaseline, was packed down to the apex and over this was placed a gutta-percha root filling, zinc chloride and amalgam. Little discomfort has occurred in these teeth since that time except for the continual deposit of calculus. This minute detail has been gone into to show the very unfortunate treatment these teeth have had for twenty-four years, and yet they remain useful, while the teeth on the opposite side have had neither cavities nor fillings and are being lost from pyorrhoea. The second molar is shown in the cut, and the first molar is still fairly useful, but badly affected by the disease. This would seem to be a strong argument in favor of devitalization of the pulps of teeth as a preventive measure in cases of impending pyorrhoea.

The tooth shown in the cut was regularly scraped, scaled and polished. Each year getting a little worse until 1908, the apex of the distal root was reached and the pulp irritated from the treatment. For about a month unlocalized pain was felt on the left side. The patient, though a dentist, had several diagnoses of the cause of the pain. He had his eyes, nose, throat and ear examined

without result. He took drugs to allay the pain when it came on at night. There was, during all this time little, if any, sensation in this tooth. All of the teeth were carefully examined several times. All the pain and discomfort was borne in the face of the fact that the patient's dentist told him that he had gone close to the apex of the tooth in the treatment and that likely the pulp of the tooth was the cause of the trouble. Not until the tooth became exceedingly sensitive to cold did the patient accept the diagnosis which had been suggested a month before. It is so true that the physician who treats himself has a fool for a doctor. No person should attempt to treat himself. Neither should a physician or dentist be influenced in his diagnosis by his patient.

This tooth became so sensitive to cold that so slight a change of temperature as that produced by holding the point of the tongue out of the mouth for a moment and then placing it against the tooth paroxysms of pain would be produced. Changes of temperature caused by the heat of a drill on the enamel was unbearable. Gas was administered by the nasal passages and the tooth drilled into until the pulp was reached and a haemorrhage occurred. Cobalt was applied and within fifteen minutes the pain was gone. The devitalizing material was changed at least a half dozen times during the next six months, but the pulp did not die. The pulp chamber was opened into freely and a dressing inserted which remained until the tooth was finally lost. A pulp or any tissue which has a passive hyperaemia will not be readily devitalized by arsenic, nor will it take up enough anaesthetic to be desensitized. Such pulps may be devitalized by placing the arsenic upon the dentine, but it must remain for a much longer period than in normal cases.

Another feature of cases of pyorrhoea that often mislead the inexperienced is the sensitiveness to cold which occurs even in teeth with devitalized pulps. This occurs only at the beginning of an attack of inflammation. The tooth becomes sore to touch, the gums red and swollen. This must be distinguished from an alveolar abscess due to a dead and infected pulp. The unlocalized pain in the early part of an attack must be distinguished from a pulp infection from decay, this is a hyperaemia from extension from the pericementum. Many mistakes are made from these conflicting symptoms. A tooth which has had attacks of calcific inflammation and sensitiveness to changes of temperature should have the pulp removed at once or it will soon become so hyperaemic that it cannot be devitalized by ordinary methods. A multi-rooted tooth which has lost the attachment of one root and developed deposits in the bifurcation and has had attacks of calcific inflammation, might as well be at once extracted, because any less than the full complement of roots will not carry a full crown for any length of time.

Selections

Constitution and By-laws of the Ontario Dental Association, Organized July 2, 1867. Woodstock, Ontario: Alexander McCleneghan, Printer, Times Office, 1868.

(Editor.—Through the kindness of Dr. J. Neelands, Lindsay, Ontario, we are able to reproduce in full the Constitution and By-laws of the Ontario Dental Society as organized in 1867. The copy from which this reprint is made is the only one known to be in existence. For the sake of present interest and preservation of the first constitution, we print it in full.)

OFFICERS.

President	John O'Donnell
Vice-President	J. H. Bryant
2nd Vice-President	W. H. Porter
3rd Vice-President	L. Lemon
Recording Secretary	J. Stuart Scott
Corresponding Secretary	R. G. Trotter
Treasurer	L. Clements
Librarian	Lyman Wells

PREAMBLE.

This association is instituted with the view of promoting professional and social intercourse among Dental Practitioners in the Province of Ontario, Dominion of Canada, and to encourage a disposition for investigation on their part in every direction which relates to the principles and practise of the profession and collateral sciences. With this object in view, essayists shall be regularly appointed to prepare dissertations embodying the results of actual experience, observation, research and reflection on such subjects. The papers to be read at the regular meetings, and to be the subject matter for discussion on the part of the members.

ARTICLE I.

This association shall be known as the Ontario Dental Association.

ARTICLE II.

Members.

This Association shall consist of Active, Corresponding, Honorary and Incipient members.

Sec. 2. Active members shall consist of Dental practitioners in the Province of Ontario, who shall have had an established office practice of five years' standing, shall be 21 years of age, and of good moral character.

Sec. 3. The Corresponding members shall consist of practitioners of Dentistry residing in other Provinces of the Dominion

of Canada, or in foreign countries, who manifest a disposition to advance the science and art of the profession by contributing to its literature.

Sec. 4. The Honorary members shall consist of practitioners of Dentistry who have honorary retired from practice, or of Medical practitioners or others, who have made valuable contributions to the science and art of Dentistry.

Sec. 5. The Incipient members shall consist of Dental students who shall have studied two years in a regular practitioner's office. They must produce satisfactory proof to the Committee of their competency to practice, and be recommended by the members of the Association, and if elected will be allowed to speak on all subjects, but not to vote.

ARTICLE III.

Section 1. Officers.—The officers of this Association shall consist of a President, three Vice-Presidents, Recording Secretary, Treasurer, Librarian, and an Executive Committee of five members, and such other Committees as shall be designated by the By-laws; which officers shall be chosen annually by ballot.

Sec. 2. Active members only shall be eligible to any office in this Association, or shall be qualified to act on any Committee.

Sec. 3. Amendments.—This constitution may be altered or amended with the consent of two-thirds of the members present, the proposition stating the amendment in writing, at a regular meeting and lie over until the next regular meeting.

BY-LAWS.

ARTICLE I.

The President shall preside at all meetings of the Association, call special meetings, appoint all committees not otherwise provided for, sign all certificates, and be a member ex-officio of all standing Committees.

Sec. 2. It shall be the duty of the Vice-Presidents, according to seniority, to fill the place of the President in his absence, and assume all the duties of that office. In the absence of these officers a chairman pro tem shall be appointed viva voce.

Sec. 3. The Recording Secretary is to take and preserve correct minutes of the proceedings of the Association, to notify members of the meetings, to keep a correct list of the members of the Association with the date of their election, resignation, or death, and to lay before the Association at the annual meeting a summary of its transactions for the preceding year.

Sec. 4. The Treasurer shall take charge of the funds of the Association, and attend to the collection and payment of moneys, but no moneys are to be paid by him without an order signed by the President, and countersigned by the Recording Secretary. He is to keep a clear and detailed statement of all receipts and expend-

itures, which is to be laid before the Association at the annual meeting, and shall be delivered up to his successor, on retiring from office, all books, papers and funds in his possession belonging to the Association.

Sec. 5. The Librarian shall take charge of all the books and manuscripts belonging to the Association, Keep a correct list of all donations and deposits of books, of those missing or lent, and to report on the state of the Library at the annual meeting.

ARTICLE II.

Sec. 1. Executive Committee.—The Executive Committee shall ascertain the qualifications of applicants for membership, and report the same to the Association; audit all accounts of the Association; provide a suitable place to hold the meetings in, and perform such other work as may be referred to them by the Association.

Sec. 2. Membership.—Candidates for membership must send in their application at least one week before the day of meeting to the Secretary, who shall refer the same to the Executive Committee, and their report shall be acted upon at the next regular meeting, two-thirds of those present being required to elect.

Sec. 3. No person shall avail himself of the privilege of active membership, unless he shall have signed the constitution and paid the membership fee, and an omission of two years' paying shall constitute his election void.

ARTICLE III.

Dues.

The admission shall be four dollars to be paid before signing the constitution, and the annual fee to be One Dollar per annum, payable on or before each annual meeting.

ARTICLE IV.

Privilege of Members.

Sec. 1. Active members shall be entitled to privileges and gifts of the Association.

Sec. 2. Honorary, Corresponding and Incipient members shall be allowed a seat in session, and have a privilege to debate all questions not involving pecuniary outlays.

ARTICLE V.

Expulsion or Resignation of Members.

Sec. 1. Any member may be expelled for unprofessional conduct, malpractice, or gross immorality, on being duly convicted thereof, three-fourths of the members present at a regular meeting voting for expulsion.

Sec. 2. Any member shall have leave to resign upon application made in writing, providing all arrearages due the Association are paid.

ARTICLE VI.

Meetings.

Sec. 1. The annual meeting of this Association shall be held commencing on the last Tuesday in the month of July, at such time and place as shall be chosen from year to year, to commence at half-past seven P.M.

Sec. 2. The semi-annual meetings shall be held on the last Tuesday in the month of January in each and every year, at such place as shall be decided at the last previous annual meeting, and to commence at half-past seven P.M.

ARTICLE VII.

Amendments.

These By-laws can be altered or amended at any regular meeting by two-thirds vote of the members present, notice of alteration or amendment being given at a previous meeting.

All motions and notices of motions to be submitted in writing.

ORDER OF BUSINESS.

1. All meetings of the Association shall be called to order by the presiding officer at the hour appointed.

2. Reading and confirming of the minutes of previous meeting.

3. Calling roll of the Association.

4. Applications for membership and elections.

5. Reports of Executive Committee and of the Officers.

6. Unfinished business.

7. New business.

8. Written and oral communications.

9. The presentation of specimens of morbid anatomy, and operative and mechanical dentistry.

10. Notices of motions.

RULES OF ORDER.

Rule 1. When a question is before the Association, no motion shall be entertained, excepting to lay it on the table, to postpone it, to commend it, to amend it, but in taking the question, these motions shall have precedence as in order here alluded to.

Rule 2. All amendments shall be considered in the order in which they are offered.

Rule 3. No substitute shall be entertained that destroys the intention of the original motion.

Rule 4. All motions to lay a subject upon the table shall be put without debate.

Proceedings of Dental Societies

PROGRAMME OF THE CANADIAN AND ONTARIO DENTAL ASSOCIATIONS.

Tuesday, May 31st.

10.30 to 2.30—Registration.

2.30 p. m.—President's Address.

3.00 p. m.—Paper, by Dr. W. H. Whitslar, Cleveland, Ohio.
“Dental Operations which prove a menace to the
Hard or Soft Tissues of the Mouth.”

Discussion opened by Dr. Chas. Morrison, Montreal,
Que.; Dr. Chas. E. Pearson, Toronto, Ont.; Dr.
F. D. Price, Toronto, Ont.

8.00 p. m.—Paper, by Dr. D. Norman Ross, Winnipeg, Man.
“Dead Pulps and Their Sequelea.”

Discussion opened by Dr. A. V. Lester, Hamilton,
Ont.; Dr. D. J. Berwick, Montreal, Que.

Wednesday, June 1st.

9.00 a. m.—Paper, by Dr. D. D. Smith, Philadelphia, Pa.
“Oral Prophylaxis.”

Discussion opened by Dr. McColl, Buffalo, N.Y.

10.30 a. m.—Prophylaxis Clinics and Demonstrations.

2.00 p. m.—Paper, by Dr. S. G. Ritchie, Halifax, N.S. “Pro-
per Field of Silicate Filling.”

Discussion opened by Dr. A. A. Babcock, Brant-
ford, Ont.

Paper, by Dr. Harold Clark, Toronto, Ont. “Pro-
per Field of Porcelain Inlay.”

Discussion opened by Dr. C. A. Murray, Moncton,
N.B.

3.30 p. m.—Clinics and Demonstrations.

8.00 p. m.—An illustrated lecture by Dr. W. H. Whitslar,
Cleveland, on the Human Hand.

8.30 p. m.—Paper, by W. R. Greene, Ottawa, Ont. “The use
we are making of Casting Process.”

Discussion opened by Dr. Joseph Nolin, Montreal,
Que.; Dr. Casgrain, Quebec.

Thursday, June 2nd.

Trip to Niagara Falls.

10.00 a. m.—Business meeting on boat; Elections; Reports and
Educational Reports.

Report of the Dominion Dental Council.

Report from the Canadian Oral Prophylactic Asso-
ciation.

Friday, June 3rd.

9.00 a. m.—Clinics and Demonstrations.

HAMILTON DENTAL SOCIETY.

Reported by Dr. O. S. Clappinson.

The second annual dinner of the Hamilton Dental Society was held at the Commercial Club Monday, March 14th, 1910.

An excellent menu was provided by the steward and greatly enjoyed, after which Dr. Cowen very ably presided as toastmaster.

The Society was pleased to have as guests of the evening Dean Willmott, Professor Thornton, and Dr. D. J. Reade, of Toronto. The Dean, in reply to the toast, "The Alma Mater," referred to matters of importance to the profession at the present time. Professor Thornton, in his genial Irish manner, eulogized his adopted country. Dr. Reade, in reply to "Dentistry," held up some very high ideals for the profession to look to.

The toast list was as follows:

Canada—Dr. J. A. C. Hoggan, Dr. Thornton.

The Alma Mater—Dr. D. Clark, Dr. J. B. Willmott.

Dentistry—Dr. J. W. Bell, Dr. R. J. Reade.

The Ladies—Dr. A. V. Lester, Dr. J. A. Locheed.

The dinner committee was composed of J. W. Bell, W. G. Thompson, J. C. Johnston.

DOMINION DENTAL COUNCIL OF CANADA—NOTICE OF EXAMINATION.

Notice is hereby given that the next examination for the certificate of qualification to be granted by the Dominion Dental Council of Canada will commence on Tuesday, the seventh day of June. The examination will be held simultaneously in all of the agreeing provinces of Canada.

Those eligible to take the examination are the following:—

Class A.—Those who commenced the study of dentistry subsequent to the first day of January, 1906, are registered as students, and meet the matriculation requirements. These can take the progressive examination under the rules prescribed.

Class B.—Those who were registered students in any of the agreeing provinces on the first day of January, 1906. These can take the progressive examination under the rules prescribed.

Class D.—Those who were registered licentiates in any of the agreeing provinces on January 1st, 1905; who have been in "regular, legal, ethical practice" in one or more of the agreeing provinces, but who have not yet completed the ten years necessary to place them in Class C, may take the examination prescribed for Class D.

Take notice that all applications should be in the hands of the Secretary by the first of May.

For full information regarding the D.D.C. and the forthcoming examination write the Secretary, Dr. W. D. Cowan, Box 325, Regina, Sask.

MISSOURI STATE DENTAL ASSOCIATION.

The forty-fifth meeting of the Missouri State Dental Association will be held in St. Louis, May 23, 24, 25 and 26, 1910. This the "Reorganization" meeting promises to be the greatest meeting in the history of this association. Drs. G. V. Black and J. V. Konzett will be the special guests of the society.

All ethical members of the profession are invited.

F. W. PATTERSON,
Corresponding Secretary.

THE DENTAL SOCIETY OF WESTERN CANADA.

"Choose always the way that seems the best, however rough it may be."—Pythagoras.

However hard it may be for you to get into the convention of the Dental Society of Western Canada, April 18th and 19th, do not fail to be present. Look upon it as an investment, a necessity, something you cannot afford to miss, for we can assure you of a most profitable time. That Dr. F. E. Roach, of Chicago, and Dr. Thos. B. Hartzell, of Minneapolis, will make our meetings most interesting and instructive goes without saying.

Don't stay in your office and "look down in the mouth," but have a trip to Winnipeg, and in the meantime send in the name of your clinic.

"Give what you have. To someone it may be better than you dare to think."—Longfellow.

The city dentists will again banquet all outside men on Monday evening and arrangements are being made to have some good speeches (and other things.)

There will be special rates on all railroads as last year.

M. H. GARVIN, Sec.,
314 Somerset Block, Winnipeg.

Reviews

"Notes on Methods of Filling Teeth with Gold Inlays," by T. C. Trigger, L.D.S., D.D.S., St. Thomas, Ontario, Canada. The Matthews-Northrup Works, the Complete Press, 1910.

This is a book of over a hundred pages, profusely illustrated, well printed, and bound in linen. It is the first publication of any size on the technical procedures in dentistry from the pen of a Canadian dentist. The profession in Canada should encourage other authors to put their thoughts in book form by buying this book, which is so well worth a careful reading.

A full description is given of the matrix method of making gold inlays. In this chapter much valuable information is given which is as useful in other departments of dentistry as in this. Although the casting method described in this work occupies the greatest space, nevertheless there are many cases shown where the matrix method is still the most satisfactory. The author gives a full description of attaching inlays with pins. Inlays made by using sponge gold are fully described. If one feature of the book deserved more mention than another it is the exactness of description of detail and the good illustrations.

At the present time there are many dentists who have not made a gold inlay. The papers published upon this subject in the journals at the present time do not deal with the details of the technical procedures, but are discussing the general principles. Here is an opportunity for the man who is just now awakening to the necessity of knowing something about inlays to get a book in small compass which will fit him to undertake this important part of the practice of dentistry.

The department of crown and bridge work alone is worth double the cost of the book. Every dentist has seen the failures of soldered porcelain facings. The author of this book gives in detail methods of constructing crown and bridge work without putting the porcelains through the soldering process. It is so simple and effective that eventually the author's methods must sooner or later be adopted.

The book may be obtained from Dr. T. C. Trigger, St. Thomas, Ontario, Canada, or from any dental supply house.

Dominion Dental Journal

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All Communications relating to the Business Department of the Journal must be addressed to the DOMINION DENTAL JOURNAL, 3 College Street, Toronto, Ontario.

VOL. XXII

TORONTO, APRIL 15, 1910

No. 4

HAS THE BOARD POWER? SHOULD THEY USE IT?

In this issue appears a paper by O. J. Cunningham, London, Ont., advocating the disciplining of dentists who do not observe asepsis in their practices, or who are alcoholic, drug habituates or insane. The arguments in support of action are irrefutable. The only question that might delay action is the power of the Board. But if the Board has the power to discipline members for unprofessional conduct and may hinder the incompetent from entering the profession, surely they have the power to say that a dentist who does not practice in an aseptic manner, or is habitually drunk or under the influence of drugs, or insane, is guilty of unprofessional conduct and is incompetent, and besides this is a menace to the public.

There is no reason why by-laws might not be passed to deal with these important questions if need be. The mere presence of such by-laws might have the effect of more care in practice, less drunkenness and fewer drug habituates. What better illustration could we have of our duty to the public than by-laws prohibiting the incompetent, degenerate or insane from continuing to be a menace to public health, even if they had obtained licenses. Because a young man has shown himself competent, wise and of a good moral character before an examining board, it does not follow that he will always be so. The Board which has the power to say that a man has the proper qualifications to begin the practice of dentistry should have the power to say that he has the qualifications to continue.

Lest the Board might think that this discussion has little to warrant it in practice, let any member visit any of a dozen offices that might be named at a moment's notice, and if he is not convinced that more care is needed in ordinary cleanliness, then this article is wide of the mark. Within a week examples of the dangers to the public from drunkenness, personal unfitness, drug habituates and the insane have come to the writer's attention. There is a drug habituate in this province with a license to practise dentistry who is a real danger to the public where he is located. Patients may come under his care when he might suddenly become overpowered by a dose of cocaine, which he uses with a hypodermic, and not be able to give assistance that would save their lives. There is a semi-lunatic with a license to practise in Ontario. This man occasionally has visions and a command from the Lord. On one occasion he had a command to extract all of a patient's teeth, but owing to the quick-wittedness of the patient an accident was averted. The provincial secretary's department says there is no means of dealing with such a case unless someone is ready to have him committed for trial on a charge of insanity. This man might be sane enough to do many kinds of work, but he should not have the privileges granted by a license to practise dentistry. This case should be investigated. After an accident occurs it would be too late to avert it by taking away his license.

PUBLIC HEALTH AND DENTISTRY IN GLASGOW.

At a meeting of the corporation of Glasgow, Feb. 17th, 1910, a resolution was introduced by Mr. Bruce Murray, "That the attention of the Committee on Health be directed to the serious suffering and injury to health arising from ignorance in regard to the importance and care of teeth, with a view to making some inquiry into the state of affairs locally and to taking some steps by the issue of leaflets or otherwise, to warn the public against the extraction of teeth by unqualified and incompetent persons under contract to supply artificial substitutes." This motion carried by

35 to 17. It is gratifying to know that such an important city as Glasgow has put itself on record in an investigation of the injury caused by extracting teeth by unqualified persons. The peculiar part of the discussion of the resolution was that every speaker had in mind the view that the harm came from incompetent extraction and imperfect substitutes. One opposing speaker said they had as much right to investigate the workmanship of wooden-leg makers. Although the motion passed, not a speaker expressed the view that the loss of the teeth could be injurious to the health. They all, even the mover, had the idea that the loss of the teeth was what all persons must expect, and since it had to happen they proposed to have it done by competent persons. When a corporation like Glasgow will undertake to prevent extraction of teeth by the unqualified, what should our Canadian corporations do to save the natural teeth, which are as superior to artificial teeth as artificial teeth are to none at all.

MECHANICS.

The work of the dentist is too commonly supposed by those outside the profession, and some within it, to be chiefly or merely mechanical, and the dentist essentially a mechanic.

A mechanic is one engaged in a mechanical trade; an artizan.

True! the practice of some individuals is little more than mere mechanical trade; but the reason for this is in the individual and not in dentistry.

Mechanics, the science which treats of the nature of forces and of their action on bodies, is, or should be, applied in many cases with which we have to deal. This science is applied also in the intelligent practice of general surgery and of many arts other than ours that are not mechanical, according to the accepted meaning of the term. Knowledge of the science, mechanics, does not constitute those who use it mechanics or artizans, in the common and accepted meaning of these words.

Distinctions between the work of the dentist and that of the mechanic are not fantastical. They are fundamental, and no decently educated person need fail to recognize them. Our skill as dentists consists in the use or application of scientific knowledge to the person of the living subject for the relief of pain, the prevention or cure of disease or the remedy of damage or loss sustained. We have to deal with the vital phenomena. Our errors, when we err either in judgment or execution, can seldom be entirely corrected, and are indeed for the most part wholly irreparable.

On the other hand, the mechanic, whether guided by scientific knowledge or by mere rule of thumb, is engaged upon lifeless material—mere property or merchandise, which if damaged,

improperly treated, or destroyed, can be replaced. He has nothing to do with vital phenomena. His errors, when made, amount only to loss of time or waste of material or both, and can be corrected at an expense that is only material.

Prosthetic dentistry, sometimes called mechanical, is often mentioned as if the skill of the artizan were the chief or only skill necessary to success, in the practice of it.

To examine this erroneous conclusion, let us take, for example that work so commonly assigned nowadays to the mechanic—the artificial denture. What part of this work can the mere mechanic properly execute? Without a knowledge of the sciences fundamental to dentistry and a training in dental practice he cannot recognize or understand the conditions to be dealt with, and cannot determine what is proper to be done. He therefore cannot properly begin upon a case, neither can he execute or finish a case begun by someone else. He cannot arrange teeth nor contour nor occlusion according to functional or anatomical requirements for these requirements are an affair of science quite beyond the knowledge or understanding of any mere mechanic.

“Best sets,” to be sure, are and have been made by mechanics only—to the present disgrace of dentistry.

No! a man may file to beat the blacksmith, solder to beat the tinker, boil rubber to beat the cook, or polish to beat the shiner. No matter how well he saws, drills or scrapes, the skill of the artizan will not make him competent to do the work of the dentist.

Too much time and effort have been spent in the attempt to attain skill in dental practice by attention to mere manual dexterity. The skill of greatest importance to the dentist is an affair of the mind. If the conceptions of the mind are clear and accurate so will be their expression by the hand. And if the work of the hand be constantly unsatisfactory, the fault will be found either in the mind or the eyesight, provided the hand is not deformed or physically defective. You cannot train the hand to express what is not conceived in the mind. Conception, therefore, precedes expression. Knowledge precedes skill. Knowledge and skill constitute education.

The pupilage or apprenticeship of students in a dental office is an unwarranted waste of the student's time and an exposure of his youthful mind to wrong notions concerning the functions of a dentist.

The advantages derived from scraping rubber and running errands could with profit to the student be exchanged for a spring course in the school of dentistry—the proper place to get instruction and operative experience.

W. C. G.

Editorial Notes

A carpenter is known by the condition of his tools—so is a dentist.

Read Dr. Cunningham's paper in this issue and tell us what you think about it.

Dr. Bothwell, of Stratford, read a paper on "The Care of the Teeth of Children" before the Teachers' Association in Stratford.

Dr. T. H. McGuirl visited Toronto during the Easter vacation. He visited one or two towns in Western Ontario with a view to locating.

The bi-annual meeting of the Dominion Dental Council of Canada will be held at 10 a.m., May 30th, in the Dental College building, Toronto.

Dr. Brown, Prescott, has been appointed Collector of Customs in Prescott. Dr. Bleakley, of North Gore, has taken Dr. Brown's practice in Prescott.

The examinations of the Royal College of Dental Surgeons of Ontario will commence April 25th, 1910. The meeting of the Board of Directors will be held the week following.

Every teacher or examiner in dentistry should be present at the examiners' meetings to be held during the meeting of the Canadian Dental Association in Toronto, May 30, June 1, 2 and 3.

Dr. Whitslar, of Cleveland, Ohio, will, besides discussing the subject of general prophylaxis, give an illustrated lecture on the characteristics of prominent dentists as shown by their hands.

Owing to the negligence on the part of some dentists in filling out the directory blanks which were furnished them, their names have appeared throughout the Canadian Dental Directory minus their degrees.

Dr. P. I. Cunningham, corner Parliament and Carlton streets, Toronto, died of typhoid fever March 10th, 1910. Dr. Cunningham graduated from the Royal College of Dental Surgeons in 1895 and practised in St. Thomas, Ontario, for several years before coming to Toronto.

Dr. Charles E. Pearson announces that early in April he will remove to more commodious compartments in the Traders Bank building, on the northeast corner of Bloor and Yonge streets. He will continue to pay special attention to the treatment of pyorrhea alveolaris, abscessed conditions and other affections of the gums and mouth.

The Canadian Dental Association will meet in Toronto May 31st, June 1st, 2nd and 3rd. Single return railway fare has been secured on the certificate plan all over Canada. A good programme has been prepared; a large number of exhibitors will be present. An excursion to Niagara Falls has been arranged. Golfing and bowling matches are already arranged. Come prepared.

Correspondence

COMBINED DENTAL CONVENTION, TORONTO, MAY 31, JUNE 1, 2, 3, 1910.

You have no doubt already received notices of the forthcoming joint convention of the Canadian and Ontario Dental Associations to be held on the above dates. The executive committee are pleased to report that arrangements are now nearly complete for a most successful meeting. Among other prominent men who are on the programme are Dr. D. D. Smith, of Philadelphia, who will give a paper on "Oral Prophylaxis"; Dr. Whitslar, of Cleveland, who will deal with "Dental Operations which prove Harmful to the Hard and Soft Tissues of the Mouth"; Dr. D. Norman Ross, of Winnipeg, on "Dead Pulpes and Other Sequelae." The Dominion Dental Council, the Educational Committee, the Army Dental Corps and other organizations that are doing valuable pioneer work, will report.

As the Canadian Medical Association meets at the same time, we have been able to secure exceptionally favorable rates for all lines in Canada and the adjoining States. Ample time is allowed for a pleasant holiday and dentists' families are eligible for the reduced rates.

The council of the city of Toronto have made a grant for the entertainment of visitors, and civic reception will be held. In addition, arrangements are nearly completed for a day's outing to Niagara Falls for all our friends. Trips to Guelph, Hamilton, Muskoka, Bay of Quinte, Rochester, Buffalo, and the Thousand Islands also furnish attractive outings for the week-end. Good lacrosse matches and other athletic contests are regular Saturday afternoon features in Toronto. The spring meet of the Ontario Jockey Club is held about that time. Lawn bowling and golf will be available for those who wish to indulge. Bring your golf clubs with you.

Make arrangements NOW to join us. You can't afford to miss this opportunity of getting the very latest ideas in dentistry. We need your help to make our profession what it ought to be—one of the greatest agencies for the relief of human suffering and the prevention of disease. Come along and meet your brethren and LEND A HAND.

C. HAROLD CLARKSON,
797 Bathurst St.

Chairman of Executive.

GEORGE W. GRIEVE,
2 Bloor St. E.,

Sec'y of Executive.

MEMORIAL TO DR. MILLER

Columbus, Ohio, March 21, 1910.

To the Dental Profession of America,—

At the December, 1909, meeting of the Ohio State Dental Society it was unanimously resolved that an American memorial be established to perpetuate the memory of the late Dr. Willoughby D. Miller, as an evidence of the profession's appreciation of his laborious and fruitful researches for the scientific advance of dentistry.

From the concensus of opinion of various state and local societies, it was decided that the memorial take the form of a monument to be erected in a suitable public place in Columbus, Ohio, the capital of Miller's native state, the monument to consist of a life-size bronze of Dr. Miller, mounted upon a granite base of suitable proportions with appropriate tablets, the cost of which will approximate \$8,000.

Though his scientific career was in a foreign land, the great pride he showed in his American citizenship, the love for his profession in America, and his final plans for educating students in his own country in the line of work he had so ably begun, should make this memorial movement national in its scope, and to this end the committee in charge has selected honorary committees in the several states to co-operate in bringing this matter to a successful issue.

This movement has received the endorsement of the National Dental Association. Ohio will raise \$1,200 for this fund, and it is the desire of the committee to have one tablet to state that contributions were received from representatives of the profession in every state of the Union.

Contributions are desired from individuals as well as societies, in fact, many small subscriptions are preferable to a few large ones.

The committee has selected Dr. Weston A. Price, 10406 Euclid Avenue, Cleveland, Ohio, to act as treasurer of this fund, and to him all subscriptions should be made payable.

That your state may be represented in this fund and appear in the published list of subscribers, we ask your earnest support. Your response to this appeal will be the measure, not only of the success of our committee but of the appreciation of American dentists for one who raised the standard of the profession.

Yours very respectfully,

EDWARD C. MILLS, Chairman,
16 South Third St., Columbus O.

J. R. CALLAHAN,
25 Garfield Place, Cincinnati, O.

S. D. RUGGLES,

Portsmouth, O.



W. F. TAYLOR, D.D.S., L.D.S., WINNIPEG, MAN.
President of the Dental Society of Western Canada, 1910.

Dominion Dental Journal

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TORONTO, MAY 15, 1910

No. 5

Original Communications

PRESIDENT'S ADDRESS, DENTAL SOCIETY OF WESTERN CANADA.

W. F. TAYLOR, D.D.S., L.D.S., WINNIPEG, MAN.

Read before the Dental Society of Western Canada, Winnipeg, Man., April 18 and 19, 1910.

GENTLEMEN:—At our last meeting held one year ago you were kind enough to re-elect me to preside over you for another year. My first feelings were that I should decline the position, as I am so poorly fitted for it, then again thinking that every member must do what little he can when called upon, and knowing the generosity of the members, I accepted the honor conferred upon me.

The attendance at our last meeting was gratifying to your officers, for you will agree with me that owing to the great distance that many of our members have to come, shows quite clearly that we have a society which has started strong, and is filled with vitality and good fellowship.

Your attention should be drawn to the fact that to keep this healthy growth up it must not be allowed to run in a spasmodic sort of way, but there must be a steady upward growth. To do this it is necessary that the executive committee should have the heartiest support of each and every one of the individual members. Every member of the executive will corroborate my statement, I think, when I say that the hardest part of their work is to interest a sufficient number of our members to write papers, give a clinic or demonstration. Now this is not a very nice thing to say, and is not as it should be. The committee should have an oversupply of papers to choose from, and those that are accepted should have sufficient time to be read and discussed, for a thorough discussion gives the author a great deal of satisfaction, and will induce him to write another.

Every member of this society should try and do something that may be of interest, or instructive to some other member of the profession, for it is in this way only that you can raise the standard of Dentistry, and discharge our duty to our fellow practitioners and

the public, and at the same time improve ourselves, for the author of a paper generally derives as much benefit from it as his hearers. The same applies as well to the Clinicians and Demonstrators.

Let every member that is here today make up his mind that he will do something the ensuing year that will be of interest to this society. Now it does not need to be something big or great, but something out of every day practice, and there are plenty of small things happening every day if you will only take the trouble to look into them and make a note of them. Write them down and bring them up for discussion. In a very short time you will find a steady advancement, and our position will be looked up to, for membership in this society will stand for progress, and every dentist will be glad to attend the meetings and think it a mighty good investment for such a small outlay.

In regard to the inspection of School Children's Teeth—I think we are making a good move in the right direction, and hope the report of the committee will, bring up a good discussion, and we might go a step farther and do something in public dental education by distributing literature in the different schools, also in the homes on "The care of Teeth."

Now we have an excellent programme before us and I advise each and every one of you to try and make this meeting the greatest success by entering into it heart and soul and taking your part in the discussion, and give what you can from your store, and I can assure you that we will go home better and wiser men, and enabled to give better service to the public.

For the honor you have conferred upon me by re-electing me your President, I wish again to thank you, also the officers and members of the several committee's for their assistance and the excellent programme they have put before us.

DISCUSSION.

DR. BUSH: Mr. President and Chairman; Let me first of all compliment you on the excellent manner in which you fill the Chair and how well you look there. I am glad to see a man from the far West taking that position.

It is said that the road to hell is paved with good intentions. Now during the past year I have been very busy making paving stones and real, good, smooth ones too. (Laughter). I thought I talked a good deal too much at the last meeting and I kept making resolutions that this time I would keep my eyes and ears open and my mouth shut, and now the very first thing you do is to put the finishing, polishing touch on those stones by asking me to get up and speak first.

I am delighted to hear so good an address from our intellectually and physically robust President. (Laughter). There are many excellent suggestions in it and I suppose to every thinking man now and again the thought comes "What's the good?" "What's the use?" We all of us must get tired now and again, those of us

who boast a little brain, and I think conventions of this kind answer that question to a very great extent, for when we gather together we may find truths and discuss ideas that would never occur to any one single individual.

I won't take up your time any longer, because there are much better speakers than myself here and I can only say that I endorse the President's views in every respect. (Applause).

DR. DARLING, of Edmonton, was then called upon and spoke as follows:

MR. PRESIDENT AND GENTLEMEN: I do not know why I should be singled out this morning. I am a little tired, I have just left the train and I find every face about me a strange face. I did not know until Saturday night, when I went home to dinner that I should be here this morning. I certainly haven't done any thinking along the line of how I should talk on this subject or on any other. I enjoyed the President's address, although it comes to me with newness in many lines, because of the facts I have already mentioned. I am glad to be with you, gentlemen; I am glad to be away from the routine of the office. I think I should have to confess to a little selfishness if I were to tell absolutely and solely why it is I am away from the office this morning and down here, just primarily to be away from the labor and for a rest. Nevertheless, I am glad to spend that time with the members of the Dental Society of Western Canada. I hope to have at least a pleasant association with you, and I am sure it will be profitable for me. I thank you gentlemen. (Applause).

It was moved by Dr. Bush, seconded by Dr. Banning, that a Committee be appointed to report on the President's address at some future time during this meeting: Motion carried.

REPORT ON PRESIDENT'S ADDRESS.

Your committee beg to report that they heartily endorse the sentiments contained in your address, especially those parts which deal with every member of the Society making an effort to do his share, be it much or little, to make the next meeting a success: Your clause in regard to the inspection of school children's teeth cannot be too forcibly accentuated, and your committee trusts that the various bodies who have been given charge of this matter will take an aggressive attitude and that they will, at our next meeting, be able to show that they have been successful in their efforts.

(Signed): G. F. BUSH,

W. W. WRIGHT, Secretary.

"HOW I SET A BADLY FRACTURED LOWER JAW."

BY C. H. WEAGANT, D.D.S., PORTAGE LA PRAIRIE.

Read before the Dental Society of Western Canada, Winnipeg, Man., April 18 and 19, 1910.

In deciding to inflict this society with consideration of this subject, it was not so much with the idea, that any one of its members would not feel entirely at home with a similar practical case, as that, in the method I pursued, I deviated from the numerous well known examples described and illustrated in the text books on this subject, usually found in all dental offices.

It also struck me forcibly that, in this age of rush and turmoil, of strenuous games, of risks in hunting, automobilng, etc., the human race is peculiarly susceptible to this distressing accident; and the wonder is, that we are not more often called upon to treat similar cases.

I also further remembered, that many of you like myself are not in the habit of practising orthodontia, and have not got a supply of bands, jack-screws, and the other materials necessary to adjust appliances similar to those prescribed in all text books, for the treatment of these fractures. I thought that a statement of how I used what materials every dentist would have on hand, in a case that demanded immediate attention, might not do any harm.

In the experience I am about to describe, the lesson was brought home to me, that while fortunately, few of us ever have one of these cases in our private practice, still the fact remains, that it may be the turn of any one next to have that luck.

My patient was a teamster, age 23, height 5 ft. 10 inches, of very strong constitution, and large, strong bones. In a run-a-way of his team on 6th January last, at 6 p.m. his horses dashed into their own stable-yard, and in the sudden stop the driver was pitched headlong, striking his chin against a pole, fracturing the lower jaw in a line with the second bicuspid, on the right side. He picked himself up, spat the aforesaid bicuspid out of his mouth secured his team properly for the night in their stable, and then went out to a doctor's office. The doctor diagnosed a compound fracture under the inferior right second bicuspid, and simply applied externally the fourtailed bandage for that evening.

At 9 a.m. next morning the doctor brought the patient into my office. After a careful examination, I decided that on account of all the upper anterior, and upper and lower posterior, and nearly all of the lower anterior teeth being mere shells. I could not safely use the fracture bands so universally prescribed by Angle, Harris, and other authorities. I had on the spur of the moment to devise some other scheme; and decided to try the method I am about to describe.

I found that the ragged fractured ends of the broken mandible, went readily together and could be nicely held while I took an im-

pression. The course which I intended to pursue, which included the taking of an impression of both the upper and lower teeth, was explained to the patient, and we advised him to take an anaesthetic. Being a thoroughbred Irishman he emphatically refused.

With a great deal of pain to the patient of course, the doctor holding the fractured bone, I got an excellent impression and cast of both jaws. From these I concluded that that of the lower represented the exact size and shape as the jaw before it was broken. On this model I carefully moulded a frame, or splint, of pure copper wire No. 18 that embraced at once all of the teeth in the lower jaw, the ends of the splint being soldered together.

The splint thus constructed was slipped over the patient's teeth and fixed in position by means of several pieces of soft binding wire No. 26, about five inches long, commencing with the two isolated molars in the short fragment of bone on the right side. I was particularly careful to secure these first.

The manner of tying the teeth was as follows:—I first inserted the end of each wire, over the outer bar of the splint, through the interdental space, and below the inner bar. With a pair of operating pliers I then bent the end round to the next interdental space, and made it to return over the inner bar and under the outer bar of the splint. The two ends were then loosely twisted together. The same process was repeated on the other side of the mouth, on alternate teeth until the splint had a firm hold.

When all the wires were passed, the doctor then made sure that the broken ends of the fractured bone were in proper relation, and held them so, while I, with the aid of my dentimeter twisted up tightly and securely all of the ends, cut off the surplus and tucked what was left under the outer bar of the splint.

When through with this we found the broken jaw very firm and steady in the vicinity of the fracture. The patient could readily close his teeth, and assured us that they articulated exactly as before the accident. I decided that I would not try to wire the lower teeth to the upper ones, if the splint continued to hold the fractured jaw as well as it promised to do. We moulded a cardboard splint to wear under his chin, and secured it with the usual four tailed bandage. After strict caution to keep his teeth closed for three weeks we dismissed him.

He was supplied with a quantity of listerine and peroxide of hydrogen, and for the first week found it very necessary to use large quantities of these commodities. He was seen every day and the splint was found to be doing its work admirably. He surreptitiously went to work in two weeks. Declared in two and a half weeks that the bones had united, discarded the external bandage, and had a shave in three weeks, and the splint and wires were taken out of his mouth in four weeks. In five weeks he was, in spite of all warnings, exemplifying to people in different ways how strong his "jaw" was.

DISCUSSION.

DR. K. C. CAMPBELL: Mr. Chairman and Gentlemen: In rising to discuss this paper I might say that I only got the paper this morning. I understand Dr. Weagant intended to give a talk on the subject and at the eleventh hour changed his mind and read a paper, which I got this morning, and in discussing it *imprömtu* I regret that I have not the oratorical powers of some of my friends here so that I could do so in good style.

I might say that any criticism of this particular case might seem a little out of order as the proof of the pudding is in the eating and evidently Dr. Weagant got excellent results from this method. However, there are a few points I should like to bring out that may be of some interest. I should like to ask Dr. Weagant why he did not use a platinum wire instead of the copper wire, it being stiffer and not having that bad metallic taste that copper has.

Then I should like to suggest that the case might be treated differently so as to obviate the necessity of taking an impression, which in all cases of this kind is a painful procedure, and in cases other than this simple case where the two fragments were put in proper apposition, direct apposition, there would necessarily be considerable difficulty in getting a proper impression to treat it in the manner he did.

I would suggest a much more simple method of wiring the lower jaw to the upper jaw, using German silver wire, guage 24 to 26, or using a new wire which has recently been put on the market called the Vienna silk wire, manufactured in Vienna, and which has won great favor among surgeons for the wiring of bones where they have to make an incision. It is very, very tough and can be used to greater advantage than even the German silver wire. Dr. Taylor has a sample of it in his pocket if any one wishes to see it.

In this case of fracture I should think that with this method there would be a certain amount of mobility which would retard the knitting of the bones, but with the wiring of the lower jaw to the upper jaw there would be no necessity to direct the patient to keep his mouth closed for three weeks and there would be no necessity for bandaging, whereby the man feels uncomfortable when he comes before his friends, or on the street. He might easily go to work the next day, and work during those three weeks, which would be a distinct advantage and obviate, as I said before, the necessity of taking any impression or the use of any anaesthetic.

By using the German silver wire or this Vienna silk wire the fragments can be drawn to their proper place, if not at the first operation, at a subsequent sitting a day or two later and held in firm relation.

I think that is all at present. (Applause).

DR. BUSH: I agree with Dr. Campbell in the fact that in a great majority of cases a fracture, even compound fracture, can be

repaired most satisfactorily by means of wiring. Of course, there are cases where an interdental splint is necessary. There are many different things which present themselves to us out of the ordinary. For instance in a case where, perhaps, a blow would loosen all the teeth on one side that would render the matter of wiring out of the question; an inter-dental splint would be necessary, or something of that kind to hold the teeth in position. An impression might be taken, and then saw wherever the teeth were out of alignment, place in alignment and then make a splint on that.

I do not pose as an authority on this matter and I feel great diffidence speaking after so thorough and eloquent a man as Dr. Campbell. The point I have to illustrate is this, simply that one thing which Dr. Campbell touched upon, and that is that the patient is generally in a pretty bad condition when he comes to you to have a fracture reduced, and anything that will lessen the duration of the operation or lessen the pain is worthy of consideration.

In fastening these wires, say four on either side, it is quite possible to break one. I think the man who never breaks a wire is very much like the man who never makes a mistake. The man who never makes a mistake never makes anything and these little ideas led me to devise a means of overcoming some of these, and I brought with me a little bundle of wires, what I call my specially prepared wires for the purpose. I have no patent on this and I am going to give the idea free, gratis, all for nothing, to the members of the Society. This wire is 24 gauge. You may get whatever gauge you like, of course. I treat my own wire and after it is annealed thoroughly, and one little hint about annealing. It is not necessary to do as some advise, place it in plaster cast; you run just as much danger of injuring the wire and you don't get as good an annealment. The better way is to follow the plan used by those who manufacture the wire, roll it into a tight coil like it is when you buy it and then heat with a large flame, and heat the whole mass. In that way you get a good annealment. After your wires are annealed cut them off, set your rollers tight and run the wire down a couple of inches from the roller; that leaves a little spring temper plate at the end of the wire. Then instead of having to thread the wire through the interproximal space, take something and turn it round and bring it back. All you have to do is to form a loop, place it over the lower portion of the tooth, press it down and it will go down through. You have then a lever wire which you draw from; then connect to the round wire and then twist.

I heard Dr. Weagant mention fracture bands. With all due deference to Dr. Angle, we owe a great deal to him, I cannot possibly see the use of fiddling with fracture bands, cementing them or not, as the case may be, and screwing them up in a patient's mouth when the patient is generally in a half-fainting condition. This is done in less than half the time and is just as effective, if not more so.

Then you will find—I will pass some of these wires around that

you may see, I will pass them all but one, should you have the misfortune to break a wire just after you have got your operation completed this will overcome that difficulty, because if you simply take your finger nail and run it like that (illustrating) it forms a circle. That straightened out has a spring temper, carefully thread it through the inter-proximal space, the spring of the wire being in a circle will cause it to follow round the neck of the tooth and it will come out on the other side; catch hold of it with the pliers and pull it through, so that you have not got to undo the whole thing.

I am sorry to have taken your time. (Applause).

DR. HOWES: Supposing those molars had not been in place and the fracture happened in the same place what would have been the procedure then to have got the parts properly in apposition to each other. I had a case just recently I might mention in which a man got a kick from a horse and the upper left jaw, right from the cuspid to the second molar was driven inward, and when I saw it about three weeks after the accident had happened, the first and second bicuspid and first molar were at least half an inch below the superior surface of the lower molar. Of course, everything was firmly in position then. I don't know whether those parts could have been placed in proper relationship or not, if taken at first, but I would like to ask if any one would have advised even at that time an operation to have restored that upper part to its proper place.

DR. J. P. BANNING: I had a case about five years ago somewhat similar. A man on a tooth got kicked by a horse. He went to a physician and the physician fixed him up temporarily. There was considerable misplacement of the broken segment, probably a quarter of an inch. Wiring was out of the question, so I had to take an impression of the upper and lower, saw through the lower cast and replace according to the usual custom and make an interdental splint of rubber and splint that to the upper teeth, not the lower, and by bandaging and by pressure at various times we were able to get that fragment put back in place so that it would come in the recess made for the teeth in that splint. It probably took two or three weeks to get it up in place, partly because the patient was not able to come every day. Pressure causing absorption of the tissues which had formed around the fracture, those tissues were absorbed and we gradually forced that fragment into place in the splint and in about a month or a month and a half, the case was discharged as cured. The patient was very much pleased with the case, we were all pleased and the patient promised to report in a week or two how he progressed. Unfortunately he left the city, did not leave his address, and although we heard, perhaps, a month or two later that the case was progressing nicely, we shook it off our consciences and never even got paid the fee.

DR. SAWYER: Mr. Chairman, I do not pretend to be a record

winner or tell one story to beat another, but up in the territory where I live, up in Saskatchewan I have had three fractured jaws within a year and I am taking quite an interest in this, because I was pretty well interested in those cases, I assure you.

The first one was a man sixty-seven years of age. He was going down into the Qu'Appelle Valley and he fell off a load of lumber, and we don't know whether the waggon passed over his jaw or not, anyway the jaw was broken right in the medium line, with an angle of about 45 degrees. It was about three or four days before I saw him. Being a very stout man we had some difficulty in getting a splint on him, the ordinary inter-dental splint wouldn't work on him at all, so we put up a kind of crude form of splint. I took an impression of the jaw, got it into position as well as I could by putting a small steel bar and attaching the wire to it. This was the only thing that we could use, on account of his chin, he practically hadn't any chin. It came right down straight, so we put this little bar there and made it as neat as we could. Then we used the adhesive bandages around under the jaw, then brought the foretailed bandage around and up, and got it into fairly good shape. Of course, being an old man it took pretty nearly two months to heal.

In putting on the splint I used a cement, I cemented the teeth solid, because there were very few teeth there to attach to, and I thought the more solid I got it the better, so I attached it with cement, and it worked out all right.

The second case was a man who was riding horseback and leading another horse and the one horse pulled him off, kicked him right on the lower jaw and it broke the jaw at each cuspid tooth, leaving the anterior fragment so that it would wiggle around in any direction. That was the worst case I got. We got the bandages on him and the splint, and everything, but he couldn't speak very good English, he was a foreigner and as soon as the bandages got tight, he took them off. Of course that left it just as bad as ever. We got an interpreter, and kind of read the riot act to him there for a little while. It healed up pretty well, but it must have been pretty nearly three months before we could get him fixed up, because he was a pretty hard case to handle. It wasn't only the jaw, but it was the man himself.

The third case was a little girl between six and seven years of age. She was riding home from school in a cutter. They were horse racing with other children, and she was leaning over the dash-board of the cutter and pounding the horse and the horse kicked her right on the jaw and broke the lower jaw between the first bicuspid and the cuspid tooth on the right side and split the upper lip right up about half inch above the bottom of the nose, and drove the upper jaw back. It was a pretty bad case. This happened on Friday night and we didn't get her until Sunday morning, and the result was infection. They were trying to feed her, and I don't know what all they didn't have in the cavity. They

were foreigners and didn't seem to take any sanitary precautions at all.

On account of the upper jaw being out of line and the teeth not erupted we had nothing to guide the lower jaw by. The deciduous set were partly in, they were decayed away, so all we could do was bandage her up. We just bandaged the head up the best we could and the jaw came together fairly well, but is not just as good as we would like. That was the hardest case we had on account of having nothing to go by. I thank you, gentlemen.

DR. HOWES repeated his question and the President asked Dr. Roach for his view of it.

DR. E. E. ROACH: Mr. President. I do not know whether I fully understand the conditions, but if I do understand correctly that the fracture was of the upper maxilla and there had been a union, had been a knitting together, a union of the bone, I should think that it would undoubtedly be necessary to break the bone in order to properly apposition them. A surgical operation I think would be necessary, if I understand the case properly.

DR. HOWES: The upper teeth were too long and overlapped on the inside.

DR. ROACH: I don't believe it would be feasible. There is hardly any limit to the plasticity of the jaws in youth, and our Orthodontists have shown very conclusively that the entire facial expression and the mobility of the contours, there is hardly any limit to it, but it is very questionable whether it could be done along orthopedic lines. I believe it would necessitate a surgical operation, that is breaking the parts or sawing them off and setting them back in proper position. That is my opinion. I do not pose as being an authority on surgical procedures, because we have so many surgeons in our town looking for this work and we have to support them so we let them have that part of the work.

DR. CAMPBELL: Mr. Chairman: I might say that I have had two or three fractures of the lower jaw and with these cases of fracture in the vicinity of the second and third molars, I do not touch them at all; they take care of themselves by the muscles drawing the posterior fragment to a sufficiently approximate apposition to make a good union..

THE CHAIRMAN: I think, Dr. Howes, you would find that that part would take care of itself and if you do not get an exact alignment you would have the articulation of the other teeth, and that is what the most of us try to get.

DR. BANNING: I had not seen the case until about three weeks after the accident and there was quite a bit of tissue, but by bringing pressure to bear every day that fragment was gradually forced up until the teeth came into the recess in the splint which was made for them, and if those two molars had not been there, there could have been a recess corresponding to the alveolus which would have

guided that fragment into the proper place in that splint; in that way you get the apposition.

DR. H. DARLING, OF EDMONTON: I have had two experiences of this, and I had the opportunity last winter of seeing one more, which was not in my hands. The first one, if I am not trespassing on your time, was the case of a boy about twelve years of age, and the deciduous teeth was slow in disappearing. The boy was kicked by a horse and the jaw broken at the cuspid, on the right side. There, it was a case of guesswork to some extent to get the teeth properly adjusted. I used the Gunning inter-dental splint and the teeth afterwards came in and I saw the case about three weeks after, they came in fairly well apposed.

The next case I had was two years ago. A man was driving one of those large wagons that carry meat to the city and the retail houses and in a runaway he got under the wheels, his face was very badly broken up; the lower jaw broken at the first bicuspids on the right side. I made a Gunning inter-dental splint for that, leaving an opening large enough for a good sized straw to go through and feed him, and by taking one impression of the upper jaw, and an impression of each part of the lower jaw, sawing out so as to get the articulation approximately, as I thought but it was partly guesswork, I found after healing that that was almost a perfect adaption.

The third case was like this, but there was only one molar. I was called in to see this case; another dentist was there with the doctor who had been in charge. The man had been drunk and didn't know how it happened. The doctor who had it in charge attended to this man; the dentist didn't have anything to do with it save to go with him and I was invited along. I watched the doctor doing it. On account of their being but one molar no ligating was attempted. He gave the patient chloroform and we helped to hold the jaw while he drilled four openings and ligated the jaw together with silver wire. I didn't see that case afterwards, but I have the doctor's word for it that the articulation was good for the larger portion of the jaw, and very good for the smaller portion. That molar in the smaller portion turned in a little, of course.

I thank you, gentlemen.

DR. C. H. WEAGANT closed the discussion as follows: Mr. President, the prime object that I had in bringing up this discussion before this Society has been attained to a marked degree. I have always wondered what I would do in a case of a fractured jaw in my practice. It is a subject that is rather an unpleasant one to contemplate and it is always uncertain. On that account I surmised that if it was broached in this way today I would hear of a number of other cases and we would all be benefited more or less in that respect and as I said before I am not disappointed. It is the first time I have ever heard this subject discussed at a dental convention, and I believe it is a good thing.

Now in reply to a criticism or two that has been made in relation to the wire that I used. When the patient was brought to my office that morning I immediately visited all the jewelry stores and hardware stores in the city and got samples of different kinds of wire. I found myself of course, very scarce of what I thought would be good. I found I could not get gold wire nor silver wire either from a jewelry store or hardware store in the city and after consultation with the doctor we decided we would take chances on pure copper, which I was able to procure of the size known as 18. It was very pliable and I thought that would be an advantage, because it could be pinched in between the different teeth, as I moulded it on the cast which I got from the impression, and after it was tight I found it was very rigid and held everything in splendid position.

Now I expected this criticism on the manner of my use of copper and I have carefully gone over authorities on this subject of fracture and I found numerous instances where copper was used. If I were to tell you that in my opinion the use of brass within the mouth would be infinitely worse than the use of copper, I think I would be believed. At the same time I found in a text book in Portage la Prairie where brass was actually advised to be used in cases of this kind so that I think, under the circumstances, I was justified in using the copper.

The mouth was very sore for a few days after the operation, but that was natural, because we found in the authorities on fracture that we must expect copious suppuration of the parts through the mouth in the vicinity of the fracture, and by the use of a large quantity of listerine and peroxide of hydrogen, we corrected this matter and after that the patient assured us that he had no bad taste from the copper.

The pliable wire I used in ligating the teeth was the best I could procure and was common, soft iron wire that I procured in the hardware store; the size of the spool was 26. It was considerably larger than what I used in my dentimetre in common bridge work and I decided it would be heavy enough and we found when we took off the splint four weeks afterwards that each tie of this soft wire was in good condition. I soldered the ends of the copper wire with silver solder and it worked all right. The mouth was in very good condition when the splints were taken out.

CHAIRMAN: Gentlemen, while we are still on this subject I might say that I have a patient in hand just now and I have persuaded him to come up to-morrow morning so that you could see him. He is a case that did not get to our hands until seven days after the fracture and it is pretty hard to get a definite history of the case as to how it happened. He says that the jammer of a derrick hit him and his boss says it was another kind of jammer hit him. I have a couple of skygraphs taken of it and we got the alignment in very good shape. Adjourned till 2 p.m.

DENTAL STERILIZATION.

By LOUIS BOUCH, D.D.S., WINNIPEG.

Read before the Dental Society of Western Canada, Winnipeg, Man., April 18 and 19, 1910.

In this paper which I have tried to make as brief and concise as possible and the title of which, as you will see by its contents, should more properly be dental instruments sterilization, I propose to submit to you a little plan for the rapid and thorough sterilization of our instruments.

I think it unnecessary to dwell very long upon the necessity of asepsis in our work. Sterilization is, in the face of our present knowledge of bacteriology and pathology, a matter of necessity and not of choice.

It has been scientifically demonstrated that many pathogenic germs are constant inhabitants of the human mouth, that the tubercle bacillus in very many instances is found among the bacteria of the mouth. Only a few days ago I was told by a physician that a young boy whose teeth I was attending to recently, will be one of the first patients of our new sanatorium for consumptives. The boy is said to be in an advanced stage of tuberculosis. In his family of twelve, ten are known to be suffering from the same disease and all of them have had their teeth treated in my office at one time or another.

Fournier, one of the greatest authorities on syphilography, has observed that syphilis is on the increase in all walks of life and numerous are the cases of syphilis reported in medical literature as having been communicated by dental instruments. Other constitutional and organic diseases such as albuminuria, neurasthenia, phosphaturia, diabetes and rheumatic and gouty disorders are invariably recorded by symptoms in the mouth.

To be brief I will now pass on the subject proper of this paper. I regret to say that in my opinion I do not think it possible, neither is it as necessary to have our instruments as surgically aseptic, as the expression is usually understood in general surgery.

Our work is mostly done on the hard tissue of the mouth which is not subject to direct infection. However, we perform few operations in which we do not cause wounds of the gums and in some operations such wounds are very extensive. Fortunately the gums possess a very remarkable degree of resistance to infectious agents, otherwise we would meet with disastrous results more frequently.

The fact of the whole matter is that we must not convey pathogenic bacteria from one mouth to another. Well, then, how shall we proceed to carry out a perfect asepsis in our instrumentarium without interfering with the rapidity of our work and without increasing the expenses of our office? We change our patients so often, and operate with many instruments, so that it is no little matter to sterilize them all before every operation. The method to be re-

commended must be thorough, rapid, inexpensive, free from fumes or odors and not injurious to our instruments.

Muir and Ritchie say that all bacteria can be killed either by heat, drying, starvation or chemical agents. Of these four methods for destroying bacteria, only two can be utilized for sterilizing instruments, namely heat, (that is in the form of boiling water) and chemical agents. Now as to the efficiency and convenience of these two methods, I think I can not do better than to refer you to the work of the late Dr. Miller.

Beginning with chemical agents, he deducts that—A 5 per cent. solution of carbolic acid required one hour to sterilize instruments and even after such time the result was not certain.

Of 21 pieces placed in concentrated carbolic acid for various periods of time ranging from one to twelve minutes, only two were sterilized. A 5 per cent. solution of trichlor phenol required one hour's time to sterilize.

Lysol gave results identical. Bichloride of mercury is out of the question on account of its powerful action upon steel or iron.

A 10 per cent. solution of peroxide of hydrogen comes next to carbolic acid, but is considerably inferior to it.

The essential oils in emulsion, or even pure, utterly failed to sterilize.

Mixtures of different antiseptic solutions have been tried but not found encouraging. Regarding formaldehyde he says: "For the rapid sterilization of instruments in general, formaldehyde is decidedly inferior to boiling water. For such instruments, however, as may not be boiled or even repeatedly bathed in lysol, formaldehyde sterilization is a welcome help."

It is claimed for it that it does not in any way injure even fine edged instruments. However, this statement must be taken with a grain of salt. Any instrument which is not perfectly dry rusts profusely—perfectly dry ones do not seem to suffer if left for only one hour—left in for days they will rust very decidedly.

We have to conclude that boiling water is far superior to chemical antiseptics for sterilizing dental instruments and that its rapid action and easy application should recommend it to every dental practitioner. He regards an exposure of three minutes of boiling water sufficient for sterilizing the smaller instruments, and five minutes for any others.

These conclusions of Dr. Miller may, I think, be accepted as positive, as they are the results of long series of experiments. We find then, that although the boiling water method is the most rapid and reliable, we can not use it for mirrors and handpieces as those instruments cannot be boiled or even bathed in an antiseptic every time they are used without being more or less injured, but they can be sterilized by being exposed to the vapors of formaline. Let us now pass on to the technic of sterilization.

To begin with, the proper place for the sterilizing apparatus

is in the operating room, I think it is well that our patients should not only know but also see that instruments going into their mouth are sterilized. Our equipment should consist of—1st A copper pan of proper size with a tight fitting cover and a self-lighting bunsen burner will facilitate the rapidity of the operation.

2nd. A small formalin sterilizing cabinet for the articles that cannot be boiled.

This equipment need not be elaborate, indeed it may be made to order at a very small expense, I have brought with me my own outfit and although better finished articles may be obtained from the supply houses, I doubt that anything more efficient or convenient may be found.

Let us suppose now that we are through with an operation and that the next patient is waiting. While the operator is washing his hands, the lady assistant quickly removes the bracket tray with everything on it to the sterilizing table and immediately puts a clean tray on the bracket table.

The instruments to be boiled are first scrubbed if necessary and placed in the sterilizing pan in which a 1 to 2 per cent. solution of carbonate of soda has been kept warm, and the self lighting burner turned on.

In a minute the water is boiling—two minutes later the small instruments are removed, wiped dry, and placed back in their individual places, then comes the turn of the larger instruments and the whole operation has only taken seven minutes.

Miller suggests that two complete sets of instruments be kept, but that is out of the question with the average office. We can however accomplish the desired result by duplicating a few instruments such as chisels, spoons, mirrors, plyers, explorers and hand pieces. With these few instruments we can begin, and as the process of sterilizing with water need not consume more than seven minutes, we are soon again in possession of our complete set of sterilized instruments, all placed back in their individual places in the cabinet or in the drawers of the bracket table.

Of course, mirrors and hand pieces of which we have duplicates, have been put in the formalin sterilizer and are removed from it in rotation when needed.

This is the practical method for the rapid and thorough sterilization of dental instruments that I wished to submit to you today.

Much may be said yet, but as I have already been taxing your patience to the limit, I will have to leave the subject to others who are, I am sure, more capable of dealing with it than I.

DISCUSSION.

THE CHAIRMAN: I am sure we are thankful to Dr. Bouch for bringing up this question. It is a question of great importance to the profession as a whole. I would ask Dr. Arthur Clint to open the discussion.

DR. ARTHUR CLINT: Mr. President and Gentlemen: In open-

ing the discussion on this paper I wish first to compliment the essayist on the able manner in which he has handled this very important question. I must say that I very heartily concur with him in his remarks and the importance of this part of our work. In fact I am reminded of a remark that I once heard a lecturer in surgery along this line in which he said: "The Good Book says that cleanliness is next to godliness, but in surgery cleanliness is godliness."

In reference to the danger of infection of tuberculosis I would like to say that I think, that particular attention along this line should be paid to the care of our cuspidors. It is a well known fact that the danger of infection from tuberculosis in most lung cases, particularly, is from the sputa of the patient, so that I think where we have been handling a case of this sort that particular attention should be paid to the cuspidor. Also in those other diseases that Dr. Bouch mentioned, such as syphilis, etc., I think there too perhaps particular attention should be paid to any articles the patient may have used in the office, such as the drinking glass, the cuspidor, etc.

With regard to the actual *modus operandi* that Dr. Bouch has outlined I think it very efficient and very suitable in most cases, although I think that if a method of using heat in which boiling water or steam under pressure could be used in the sterilizer, it would be much more efficient than just simply boiling water for the destroying of some bacteria. The use of formalin in a certain percentage is a splendid thing with the ordinary cabinet which the companies sell, and I think that with the use of a little borax in the cabinet it sometimes helps in the way of preventing injury to your instruments.

The question of the linen in the office too, I think perhaps, should receive particular care. This was not touched on, but I think it should be particularly looked after.

And then there is another point. In handling different teeth in the same mouth where you may have one affected by say, pyorrhea and in other portions of the mouth you may have it free from this disease, I think where you are working around one of those teeth that particular attention should be paid to the instruments and something used just on the bracket where those instruments may be thoroughly sterilized at the time before using them in other portions of the same mouth. I think something like a small vessel with pure carbolic, following that by alcohol, is a splendid manner for handling instruments that you want to use in other portions of the same mouth.

DR. WALSH: Mr. Chairman, I have just about said sufficient; I have been talking most of the morning. In regard to the matter of sterilization I think Dr. Bouch's methods are first-rate, but there is another one, I cannot vouch for it, I think Dr. Craig (?) is the authority, that a 20% solution of formalin will kill almost anything that lives or moves in a very short time, three or four

minutes, and I do not think will injure the mirror, for instance.

If we have a partial duplicate set, as I think most of us have, and immerse the ones that we have just used, after washing in this 20% solution of formalin, the assistant can then dry them at her leisure when you are busy with the following patient. Now I should like to know whether anyone here knows the specific facts in regard to formalin as a solution.

DR. A. J. COURTICE, OF WINNIPEG: I did not hear the first part of the essay of Dr. Bouch as read and I wanted to. However, it is a subject which I believe we all should be a great deal more interested in than we are. I believe for our own benefit as well as for the benefit of our patients that we should exercise perhaps a great deal more care in regard to our hand instruments especially, than we do.

In regard to the different methods of sterilization I suppose there are a number that answer the purpose very well. The formalin solution I have never tried in any case whatever, and of course the boiling has been my standby for instruments that can be boiled without injury. Of course the objection to the boiling of instruments is that they take a great deal of care in keeping them in proper condition afterwards.

DR. C. J. COURTICE, OF LETHBRIDGE, ALTA: I did not hear all of the paper but what I did hear I think was splendid. A good many of us I know do not pay the attention that we should pay to the sterilization of instruments. We do not realize the necessity, while a good many of us, if we would stop and think about these things, we would see where the benefit really comes in, not only to ourselves in building up a practice but also the effect it has on the patients. There are very few patients who come into an office that are not immediately struck when they see a dentist sterilizing his instruments. A good many take them into the laboratory where they cannot be seen and probably they sterilize them and probably they do not, but when a patient sees that the instruments are sterilized I think they place more confidence in a man. Personally I like the boiling of instruments with the addition to a little bi-carbonate of soda in the water. The formalin solution in 20% I do not know anything about, haven't given it a trial at all and haven't made a study of it.

DR. CLINT, SR.: The importance of this subject is forcefully brought to my mind from the fact that I have been practising dentistry for a long time, thirty-five years or more, and in my early history as a dentist we did not know very much about sterilization and we had difficulties then, that is, we couldn't accomplish things then that we can now. Consequently, I am very forcefully impressed with the necessity and the wisdom of being careful along these lines.

I can remember well, years ago when my predecessor, Dr. Raymond, of Almonte, now deceased, whom I may say in justice

to him was a very fine practitioner of dentistry, but it would sometimes take him oh, such a long time to get a tooth in a condition to be filled, say in the case of a purtresent pulp condition, it would have to be treated and treated for an indefinite time before it would be ready to be filled. Under present conditions this is accomplished in a few days, and subsequent history of such cases shows that perhaps the work is certainly much better done now than it was formerly.

They tell us that formaldehyde is a very, very effective agent for sterilization. We have used it in our office, but I must say that the fumes are not at all pleasant. It is necessary in opening the sterilizer to have a flue to carry away the fumes. I have no doubt if we had that we could possibly overcome the objectionable feature in the agent. They say it is a very simple means if you have got a ventilator in the office and have a hood over the sterilizer and a tube up to the ventilator, it carries away the fumes all right. We haven't tried that just exactly but we do not use that form of sterilization as much as we thought we would when we got the sterilizer. (Applause).

DR. N. H. GEDDES: I should like to ask the essayist in what way does he recommend the sterilization, for instance of the impression compound used over half a dozen times in patients' mouths, and also the rubber dam and bee's wax, which we find are sometimes used over half a dozen times or so?

DR. CAMERON, OF SWIFT CURRENT, SASK: I should like to ask the essayist too in summing up this paper what method he follows in sterilizing his towels?

THE PRESIDENT: if there is nothing further I would ask Dr. Bouch to close the discussion.

DR. BOUCH: Mr. President and Ladies and Gentlemen: I see by the programme that the next item on it is Dr. Roach so I think it would be better for us all if we had more of Dr. Roach and less of Dr. Bouch. Regarding the taking care of the instruments where they are boiled you will find if you give it a trial that by using a solution of baking soda your instruments won't rust at all, mine don't.

Regarding the sterilization of rubber dam, bee's wax, etc., the formalin sterilizer will sterilize that, I mean the rubber dam. The rubber dam could be cut up into little squares just about the size we need for every day operation and put in a 5% solution of carbolic acid until needed and when they are needed they might be passed into aseptic water and used until dry. Of course, I remarked in my paper that I did not think it was possible or even necessary to be as surgically aseptic as it would be in general surgery, so that it is hardly necessary to speak about sterilizing the rubber dam, but the rubber dam or things of that kind may be sterilized in the formalin cabinet.

Regarding towels, I take it for granted when the towels come

into my office from the laundry that they have been boiled and I think they are fairly well sterilized. Moreover, the title of my paper was the sterilization of instruments and I did not take time to deal at all with the towels or rubber dam, or anything of that kind. I shall leave that to some abler speaker for next year.

THE PRESIDENT: We have Dr. Roach here with us. Most of you saw him this morning. He is a man who has worked to the top round of the ladder by good hard work, because that is the only means by which a man can get there, and he has kindly consented to come up here and give us the benefit of some of that work. I now call on Dr. Roach.

The committee's report on the President's address was read.

RESOLUTION RE DR. HARTZELL

DR. MANLY BOWLES: Mr. President, might I make a motion. We all regret very much that owing to serious illness Dr. Hartzell of Minneapolis, has been unable to be with us. Dr. Hartzell was very kind in offering to come, and was willing to do anything that he could do for us and had he been able to be here we would have benefited by his presence and his address. Unfortunately though, owing to circumstances over which he has no control, he is unable to be with us and I would move that the President and Secretary be instructed to write Dr. Hartzell conveying the thanks of this Society for his offer to be with us and the hope that he may have a speedy and complete recovery.

Dr. Campbell seconded the motion, which was carried unanimously.

RESOLUTION RE EXAMINATION OF SCHOOL CHILDRENS' TEETH

BY DR. McINNIS.

Your committee on examination of school children's teeth, beg to report that they have corresponded with many of the principal cities of Canada and the United States, and find that there is a general movement in the right direction; few of them however, having the matter quite satisfactorily arranged, your committee recommends that the arrangement of this important work be handed over to various provincial or city organizations.

DR. GEO. F. BUSH,

Chairman.

Resolved, that this Society, recognizing the evils arising from unhealthy conditions of the mouth and teeth in young persons, heartily endorses the movement for compulsory examination of the teeth of all school children; and that the executive communicate with all Dental Associations within its territory, urging upon them co-operation with the different school governing bodies, with a view of bringing about this most important step.

A. P. McINNIS.

D. M. MITCHELL.

H. DARLING.

This report was submitted in the afternoon session, and adopted unanimously without discussion.

RESOLUTION RE MEETING OF CANADIAN DENTAL ASSOCIATION, 1914

DR. GARVIN: Mr. Chairman, Ladies and Gentlemen: I should like to bring up for discussion at this meeting the question of whether we, as a Society should favor inviting the Canadian Dental Association to hold its next regular meeting here in Winnipeg.

In discussing that question I might say that the question of holding that Association meeting in Winnipeg was brought up at a meeting in Montreal four years ago. At that time the Winnipeg dentists, who were present did not feel that it would be practicable to hold the next meeting in Winnipeg and they felt too that the Association should be worked up and more interest taken in it before bringing it as far west as Winnipeg, and the impression was left, it seemed to me, that if that impetus was given to that Association, that if they should hold the meeting in Toronto and make a big affair of it, that we in our turn would take that matter up and have a successful meeting here in the West, and when we do hold it, there is absolutely no doubt in my mind but that it will be a success. The question is whether we should invite them to come here in 1912 or not until 1914.

Now, I will mention several reasons why I should be in favor of the earlier date. The fact that they expect us to have that meeting up here before very long. The question arises at once, "Where will it be held if it is not held here in two years, and it looks as if there was a good chance of that meeting going farther east than usual. I believe that men as far east as Halifax want that meeting held there. Personally, for some years I do not think that meeting should be held farther east than Montreal, or farther west than Winnipeg, so as to have it centrally located as far as possible. If it should go to Halifax, and not be a success it would be harder to revive the interest in it the following year here.

Granting that we do have the Fair here in 1914, which is not assured at present, the question comes up about the lack of accommodation, both in railway transportation and in accommodation here in the city with regard to hotels, and it seems to me that while we might have a larger attendance in 1914 if the Fair were held here, that there would be so many side interests to draw men away from our clinic that we wouldn't have the enthusiastic meeting that we would have if we held it at some other time and had every man who did come, come for the convention and not for the Exposition.

Now then, the last point which, it seems to me, favors 1912, is this, that the Winnipeg City Dentists upon whose shoulders the burden of this convention will fall, expect to be real busy during that Exposition, if not in their offices in entertaining their friends, and the question arises will they be in a position to drop everything for a week and work night and day to make that convention

the success that every western practitioner wants it to be, and it seems to me that there is a doubt, even if the Fair is held in 1914, whether we would have a better meeting held at the time of the Exposition or whether it would be better to hold it at some other time.

As a result of these considerations I would move, Mr. Chairman, that we invite the Canadian Dental Association to hold its next regular meeting in 1912 in Winnipeg, under which conditions the Dental Society of Western Canada would withdraw its regular meeting, and unite with the Canadian Dental Association. I make this motion simply to bring out a discussion on that subject more fully.

Dr. Christie seconds the motion.

THE CHAIRMAN: This question is open for discussion now, and I would like to hear a good, full discussion on it. Dr. Bush, we would like to hear your views on it. You are the only member I think of the Association here.

DR. BUSH: Mr. President, Dr. Garvin has placed the situation to us pretty fairly. I had thought some little time ago that the general opinion was that we should hold this meeting in 1914. Four years seems a long time. I think Dr. Garvin is quite justified in his remarks about the possibility of the Convention being held farther East. The people of Halifax, from Nova Scotia and the points in the extreme east are very anxious to have the meeting held there. They even thought they would like to have had the meeting this year held there. However, the bulk of the Executive thought it was wiser that the meeting should be held in Toronto, although, I may say that as a member of the Executive I was asked if we were prepared to go on with it this year if they decided. I told them I felt quite justified in saying that we were not prepared to go on with it at this time, and the general opinion was that if the association were nursed and brought forward a little in Toronto, as I think it undoubtedly will be this time, that then they might be able to go farther. I had felt, of course, that if our Fair took place in 1912 that they would look upon it as a matter of course that we would have the Canadian Dental Association meeting here. It appears, however, that we shall not have the Fair until 1914. I am hardly prepared to champion either side. I am willing to carry the message to the Executive of the Association whichever way this meeting may decide, but I think it should be pretty thoroughly discussed before we come to any decision.

I think there are many things, in all fairness to Dr. Garvin, which favor its being held in 1914 and I am bound to confess that there are some things in favor of holding it earlier, so I would like to see it thoroughly discussed that some light may be thrown on the matter and then we shall be able to intelligently vote one way or the other. Personally, I think, I should be inclined

to favor 1914, although I am free to say I may be making a mistake.

DR. SPENCER: I think that whether it is held in 1914 or 1912 that there are many points both ways. I think it is a subject that requires special consideration. They both have advantages certainly. I really don't know which would be the better.

DR. BANNING: I rather favor the idea of 1914. There is no doubt that people from all parts of Canada will expect to come here that year, whether they come sooner or not. If we have it in 1912 I rather fear that some will not come then, because they contemplate coming two years later.

In regard to the expense or the matter of the time which we will have to lay out to entertain them, which Dr. Garvin referred to, at the time of the Exposition, I think we will be in a better position then to do it than in 1912. Everybody will expect us to be away from the office more or less, while now, or a year or two later they might think it rather strange that we should take a week or two weeks off, like they did yesterday. My office girl told me there were a dozen people in the office complaining, because they couldn't get a dentist. I think they realized more than ever before, that there was a necessity for dentists. We all expect by 1914 we will be able to close up for a month if necessary. By reason of the enhanced value of real estate they won't expect to work at all perhaps, but lay off and have a good time. Seriously though, I do not think that if the one in 1912 does go a little farther east or anywhere that it will be lost time. If it goes away as far as Halifax it certainly ought to increase enthusiasm there, which they haven't got now. Every year we are getting more enthusiasm worked up here in our society, and I do not see why it should not be the case with the large Canadian Dental Association. Consequently when 1914 comes we ought to have a larger attendance than if we had it in 1912.

DR. K. C. CAMPBELL: Mr. Chairman, I am very much inclined to think we would have a larger and more enthusiastic meeting if we held it here during the Fair. Dr. Garvin's reasons sound very reasonable, however, and I am sure that we would have a good meeting if it were held in 1912. If the majority rule that way I am sure I will do all I can to make it a success. Personally, I think I should be inclined to say 1914.

DR. CROLL: I think there might be a difficulty in having it in 1912 on account of the Fair being two years immediately after, on the ground that a great many would be coming to the Fair anyway and especially those from Eastern Canada, who would only want to make the one trip; they would postpone their trip out West until the Fair. On the other hand if the convention is held at the time of the Fair it will be a sort of injustice to the city dentists for they will have a great deal of work to do, and at the same time they will have probably an increased practice, on account of the number of people in the city at that time, which will

make it rather hard for them to attend to the business of the convention and at the same time look after their usual practice; so that I think that one counterbalances the other.

DR. GARVIN: I should like, Mr. Chairman, to hear from some of the men who come a few miles to this convention, who think it worth while to come, and whether they would stay away in order to attend the convention and the Fair at the same time.

DR. MATHESON: Mr. President, I do not know that I can give you any particular reasons why I think as I do, but I think that 1912 is not the time to have it. That is my idea of it. We haven't a great many of city men at the present time; we will have more in four years. There will be just that number to help divide up the work and I do not think that we realize exactly how much work there is going to be in connection with a meeting of this kind, and what expense there will be connected with it, and the expense, to a great extent, is going to come on the local dentists; not that we object to the expense, I know that, but I think it will be very much easier to have a larger meeting and a better meeting in every way at some future date farther forward than 1912.

DR. LOUIS BOUCH: Mr. President, if you will allow me to say a word about this I will merely put in a suggestion. I think if we have anything in 1914 it is not a National meeting we should have then, we should have the International Meeting in Winnipeg, and if we had the National Meeting in Winnipeg in 1912 that might pave the way to the larger meeting for 1914. Now Canada has had delegates to the International Dental Congress. Last year two or three gentlemen from the East were nominated by the government as delegates for Canada. Almost every nation in the world has invited the Congress to their own country and I do not see why in the world Canada should not have the International Dental Convention in Winnipeg in 1914. This is merely a suggestion and possibly others might give us their ideas about this.

DR. GARVIN: Mr. Chairman; Pardon my making a remark just before the motion is put. I made that motion just to bring out a full discussion and I think we have had a pretty fair discussion. It is a case for the individuals to decide what they think would be best. I do not feel at all enthusiastic about holding that meeting in 1912, I do not mean that, but for the reasons I mentioned a few minutes ago, I think it would be better in 1912 than 1914, and I can readily see the advantages of holding it in 1914.

DR. BUSH: Before the question is put, Mr. President, and just for the sake of making it more business-like and coming at a real definite opinion among the members, I beg to move an amendment that the motion be the same except that where the year 1912 occurs substitute the year 1914. Then we shall have a vote both ways. I do that, as I say, simply to put it in a more definite form. The remarks of Dr. Louis Bouch were very good. I quite agree with him that it would be very desirable to have the International

Dental Congress here at some time or other. I think it is absolutely impracticable to hold it here in 1914 if we hold a meeting in 1912. Every man must realize, and I trust every man here will realize whichever way he votes, that he pledges himself to put his shoulder to the wheel and put his hand in his pocket and help to roll the chariot along, 1912 or 1914, whichever the case may be.

DR. MANLY BOWLES: Mr. President, I will second Dr. Bush's amendment because I have given a little thought to it, and while I think we can make it a success in either year I believe it will be a greater success in 1912. Personally it seems to me we should hold it in 1914 for the reason that we want Winnipeg to be advertised in every shape and form that we can advertise it, that year. We will help ourselves and to a certain extent I think we will help the fair.

The motion to extend an invitation to the Canadian Dental Association to meet in Winnipeg in 1914, was put and carried.

REPORT ON DENTIFRICES.

BY DRS. ROSS, GARVIN AND WALSH.

Read before the Dental Society of Western Canada.

MR. PRESIDENT AND GENTLEMEN :

Your committee appointed, at the last meeting, to investigate dentifrices wishes to respectfully submit the following report :

So far the dentists of the West have been somewhat at a loss to know just what dentifrice to recommend. We realize that in order to improve this condition of affairs there are two ways to choose from ; either single out one of the many preparations now on the market and recommend it or place a reliable product on the market ourselves.

It so happens that some four years ago a few dentists in Toronto had under discussion this same subject, and as a result the Canadian Oral Prophylactic Association was formed by them for the manufacture of Hutax preparations. Time enough has elapsed to prove its success, and they are now manufacturing a paste, powder, and tooth brushes of three sizes. As time goes on and circumstances permit they purpose placing other articles on the market. A short history of this Association will be of interest to you, and we can best give you this by reading part of a paper prepared by Dr. McDonagh and read in the Cities of Montreal and Toronto some time ago.

Dentists who are supposed to be professionally educated were at sea, in nine cases out of ten, as to what brand of dentifrice to advise or as to what materials composed the dentifrices they did advise. The Association decided to produce a dentifrice, which was to be made, not for the money to be made out of it, but, because of its intrinsic value, and being controlled by a society the standard could be maintained. They wrote to the different manufacturers or saw them personally, asking them if they would submit their formulæ. Some refused point blank, while others told us that their preparation contained that which it did not, or else they concealed something which the preparation did contain. For example, one firm, which has a good reputation in Canada, positively asserted that their paste contained no sugar, whereas when the paste was analyzed it was proven to contain one-third simple syrup in weight.

These facts are sufficient evidence to prove that something should be done. Twenty dentists, in Toronto, each subscribed \$5.00 and then each loaned \$5.00, which were funds enough to start with to form a limited company, which was necessary in order to do business and protect the members.

The loaned money has been returned, while the other remains in the company, which never pays dividends, for the profits are to be disposed of by the Society by sending out instructive literature and donating to charitable institutions when circumstances permit.

Although failure has been predicted for the undertaking many times the reverse has been the case. The Society is now about four years old, and is in splendid condition, after having many unforeseen difficulties to surmount.

They have now something like \$600.00 in the bank, and, as you are all aware, they have been busy sending out literature throughout the Dominion as an educator. This literature has been sanctioned by the Minister of Education of Ontario and through his Department some ten thousand copies were sent, postage free, to the school teachers in Ontario.

The net profit on each article is as follows :

- 2c. on each tube and tin.
- 1½c. on the large brush.
- 2c. on the medium brush.
- 1c. on the small brush.

Your committee has given this careful consideration and is convinced that Hutax, if not the best, is as good as any preparation and very much superior to most preparations.,

Since the profits from the sale of these articles goes in the channels above mentioned, we believe that should we decide on advising them that we too should be entitled to receive the benefits in direct proportion to the amount of sales throughout the west.

Your chairman approached Drs. Webster and McDonagh in reference to what provision their Society had made or proposed for the Provinces other than Ontario. This they said had received considerable attention but unfortunately nothing satisfactory could be decided upon. They are very willing for the different Provinces to receive the net profits of the sales in the individual Provinces, but they find it extremely difficult to ascertain the exact amount of the products sold in each Province, since the articles are supplied by many houses. Were it to be supplied by only one house in each Province a hardship would be done to other houses doing business in that Province and might be detrimental to Hutax. This seems to be a hard proposition to handle and nothing definite has been done. As far as literature is concerned, the Society can easily treat each Province alike, but should they decide to make cash donations, for instance to a hospital, we fail to see how they can donate according to the sales, unless some means be devised to determine the amount and place of sales.

We proposed that we might place a product on the market, and soon found out some of the difficulties to be expected. In the first place there are only five men in Canada who are capable of making Hutax, and three of them live in Toronto. Many wholesales are not anxious to handle a new product in direct opposition to one of their own which would be of more value to them. On account of the smaller population the sales would not be as great here as those of Hutax have been in the East; a considerable amount of expense would be entailed in getting incorporation, making and registering

dies, to say nothing of securing a competent man to do the manufacturing. Even Hutax had a bad batch sent out a year ago last February, and that was a great injury.,

Having considered the foregoing facts, your committee wishes to recommend to this Society that its members endorse the use of Hutax preparations and would suggest that the respective boards of the Western Provinces be asked to take the matter up with the Canadian Oral Prophylactic Association, in order that each of our Provinces will receive its proper proportion of profits from the sales of Hutax preparations in the West.

We are, Yours respectfully,

D. N. ROSS, CHAIRMAN.

M. H. GARVIN.

C. H. WALSH.

The adoption of the report was moved and seconded, and the motion carried.

DISCUSSION.

DR. BUSH: There is one point, Mr. Chairman, that has not been touched upon. If we feel that we can conscientiously recommend Hutax or any other preparation we want to have the co-operation of the profession, and it seems to me at the present time that there is no protective price placed on Hutax. I wish to explain that in this way: It might be possible for some large departmental store (I am saying nothing against the departmental store), to get a large amount of this and place it on the market at a price which it would be impossible for the local druggists to handle. That, I think should be looked into, to see that that is protected, because if that were to occur why it would mean that the druggists would all combine against Hutax and their combination might be as strong, or stronger than ours.

DR. ROSS: With reference to that matter I do not know that we have very much to do with the manufacture and sale of it. All we have to do is, whether we care to recommend it or not. But, I may say that only a short time ago a certain druggist in this town put on Hutax at a sale price, but I think that probably the manufacturers obtained the same net profits out of the amount sold in that way as they would otherwise, no matter how it was sold.

DR. MITCHELL: Mr. Chairman, I think that Dr. Bush is wrong. I think the price is set by the Oral-Prophylactic Association. The trouble is that their price is a good deal higher than we can pay any other preparation for, consequently, druggists do not want to handle Hutax only. City druggists complain that they can buy Formaloid, Park Davis' and all those other preparations, probably at nine cents a tube, whereas Hutax costs them twelve cents a tube. I was coming up with a man who used to be interested in the manufacture of Hutax, and he was telling me that the price was set by the Oral-Prophylactic Association. I think that to compete with the other manufacturers in this paste and powder they should re-

duce the price, because druggists try to push the sale of the other preparations instead of Hutax.

DR. HOWES: I might say a word about Hutax. I have prescribed this for several years and I find that the trouble in my town is, that they are not able to get enough. They seem to have trouble in getting a supply. They are perfectly willing to sell it, simply because I recommend it to patients and probably have a little stronger argument in getting their customers to buy Hutax, than they have for the other preparations. Our trouble is to get enough. They are willing to stock it if they can get the goods.

THE PRESIDENT: I think the dentists should endorse this preparation. That is the only way you will get the druggists to stock it, if it has the endorsement of the dentists.

DR. C. H. WALSH: As a member of that committee it has bothered us considerably to find out the best method of getting our proportion of the profits from that product. That is where the bugbear comes. How many gross are used in Manitoba, Alberta, Saskatchewan, etc. The Hutax people deal probably with not more than three or four houses in Toronto, perhaps the same in Montreal and other cities, and the method has been suggested that we get a tabulated statement from these wholesales, say twice a year or even once a year of the number of gross shipped to the respective provinces. Doubtless a certain quantity will be moved from one province to another; that we have no control of; I do not see how we can hope to control it. I think that is the only reasonable method by which each province will get its proportion of the total amount of Hutax sold, because it is that profit we want for the dissemination of suitable literature; that is where the fund comes from. If any others have any suggestions we would like to hear them. I think we ought to get that from the wholesalers without any trouble.

DR. C. P. BANNING: Mr. Chairman, if this Hutax were stocked for Winnipeg either by a wholesale or by some committee of this Association, with the territory which could be protected in that manner it could be sold subject to territory rights, the same as any proprietary or patented article. I believe the name Hutax is protected by copyright. Hutax coming from the Greek, meaning health of mouth. In that way it could be stocked by a committee of this, or other associations who would act as distributors in the retail trade. In that manner there should be no difficulty in arriving at the proportion of profit to be attributed to this territory.

THE PRESIDENT: I might say, I don't know whether it is so now, but it was when Sanitol was first distributed in the West here, it was handled through a distributing agent. There was one man appointed to handle the distribution of Sanitol preparations, and the Wholesales or any of the Retailers could get it from that distributing agent. In that way you would have control of the amount of sales.

DR. BANNING: That is the idea.

THE PRESIDENT: I should like to see something definite done in this matter, because I think it would be a matter that would work in conjunction with the distributing of free literature, because there would be a certain amount of profit coming to each province. Is it the pleasure of this meeting that this matter be dropped where it is, or are you going to take further steps on it? As I understand that recommendation it has been adopted; now we require a motion to refer it to the different provincial organizations to dispose of it.

A motion to this effect was made, seconded and carried.

ELECTRICITY IN DENTISTRY.

BY J. W. LEIGHTON, GRADUATE OF THE SCHOOL OF PRACTICAL SCIENCE, TORONTO.

CHAPTER V.

DENTAL OFFICE WIRING.

It is only within the last quarter of a century or so that electrical appliances have been used for dental purposes. Perhaps the first of these to receive prominent attention was the electric dental engine. This appeared in the form of an electric motor, attached to the old foot engine, and thus not materially differing from the ordinary commercial motor when attached to any machine to drive it. Subsequently it evolved into the present type of electrical dental engine consisting of several distinctive parts, each specially designed, after many years experience, to meet the exacting conditions demanded by the dental profession. During the period of this advancement, inventors were busy producing other appliances to assist the dentist. It was found that electricity, through its capacity to produce heat and light instantaneously, was more readily adaptable than other methods, to meet the peculiar requirements of the dentist, who realizes that he must do his work quickly, quietly and with the least possible evidence of confusion. His work is continuously before the eyes of his patient, who is naturally under a strain of nervous apprehension. What is most essential in the face of this then, is the implicit confidence of the patient, and this confidence is only obtained in dentistry, as in all other professions by the speedy and absolute solution of the difficulties to be overcome. This can be illustrated by comparing some of the old methods with the more up-to-date. Take for example the case where water is warmed by gas or lamp for rinsing the mouth. In nine cases out of ten, delays are caused by the water being either too cold or too hot at the moment when it should be applied to relieve the patient from inconvenience or suffering; while with the more up-to-date electric water heaters, the temperature of the water is kept at absolutely the correct temperature, so that a patient who is attending a dentist using a electric water heater is relieved from

all apprehension of receiving a cold shock to a sensitive nerve, and must of necessity have confidence in that dentist. Furthermore the dentist himself can be free from apprehension that the patient may give a start when the water syringe is used. And who is he that can expect to instil confidence in his patients if he has not that confidence in himself ?

Take again the case of the gold annealer. The old method was to stop and light a spirit lamp, stick a piece of gold on an instrument and hold it in the flame, all before the eyes of the patient. Each piece of gold was annealed, but who knows at what temperature it entered the cavity, or how well it had been annealed? Compare with this the electric annealer whose temperature is regulated once and for all to the absolute certainty of the dentist. The patient sees nothing but simply the speedy conveying of the particles of gold from a dish to the cavity with no exhibit of heat or flame. Annealing can only be properly done by the even heating and cooling of the electric annealer.

The mouth lamp is another instance of the direct application of electric science to the speedy and safe surmounting of the difficulties confronting the less up-to-date practitioner. Compare the man operating by the light of the old kerosene lamp or the gas flame who of necessity must work in his own shadow, with the man equipped with a small incandescent lamp not much larger than his ordinary instruments. He wishes to inspect a cavity or filling located in such a position in the mouth that he cannot see clearly under ordinary conditions every detail of that cavity. The little mouth lamp is inserted in the mouth. The light radiates directly to the cavity, illuminating every nook and corner of it, without the patient experiencing any disagreeable sensations from gas or heat. Does not this tend to absolute confidence both on the part of the patient and the operator? Does it not also tend to the production of more accurate, well finished work? The Electric Furnace is another modern instrument that demonstrates the advantage of applied electricity. A delicate inlay is to be made. By the old method the gold is melted by means of a blow pipe, and in order that the heat be applied at the proper place, it is necessary that the structure be subjected to the uncertain blowing of the pipe with hazardous chances of spoiling the entire work. Compare this with placing the whole within a small muffle and switching on the current. There is no fuss, exertion or loss of time, but the absolute certainty that the heat will rise sufficiently to melt the gold to run and fill the impression. Similarly other overwhelming comparisons might be made in favor of the electric methods over all others that have been devised.

It is no wonder then that the young practitioner starts out with the installation of the electric engine and lathe, following as his circumstances permit, with the electric water heater, electric annealer, atomizer heater, gold annealer and the mouth instruments

such as the mouth lamp, root drier, hot air syringe, cautery, etc.

The introduction of these numerous electrical appliances, until quite recently, meant that the dental office in many cases presented a confused network of wires, cables, switches and cut-outs. In many instances the dental cabinet was literally covered with these connections, and the confusion occasioned was a serious drawback, not only to the expeditious handling of the various appliances, but because a source of danger through breakage, shocks, fire or electrical short circuits. With many of the instruments the voltage had to be lowered before admitting of use with safety to the patient, and as a protection against shock. Accessories, therefore, were necessary to accompany many of the instruments, adding more confusion and entanglement. Evolution and improvement tended to the concentration and reduction of the wires, necessary to convey the current to these appliances. All controlling switches, cut-outs and means for controlling the voltage have now been concentrated and the appliances known as the switchboard is the result. The purposes of the switchboard are to control all the apparatus from one distributing centre, and to conceal the connections and appliances for changing the voltage, and in order that this concentration of usefulness should be in keeping with the dental equipments and in fact with the high standard of perfection that is demanded of them, these switchboards have been so designed that they are handsome as well as useful additions to any dental office. They are usually beautifully finished, and artistically constructed. The insulating panel is generally of selected onyx or marble, and the finish on the switches and visible connections of highly polished nickle. Fig. 1 represents a standard type of switchboard as it appears for mounting on the wall. It will be noticed that at the top of the board that there are five switches, to control such appliances as the annealer, engine, water heater, atomizer heater, sterilizer, fan, etc. In the centre of the board is located the rheostat control, whose function it is to change the voltage for any of the low voltage instruments. Just below this, to the left is a small rheostat to independently control the supply for the mouth lamp. To the right, in line with this is the selector switch by means of which the voltage adjusted by the differential rheostat, may be applied to any of the other low voltage instruments. The lower part of the board is utilized for the control of compressed air. The right hand guage registers the pressure at the source of supply, and the left hand gauge, that which is being used by the syringe, atomizer, etc. The knurled thumb nut in the centre is the regulator. By screwing this in or out, the pressure can be regulated to any degree, between 0 and that registered at the high pressure gauge.

Behind the onyx panel, and enclosed by the iron frame, the wiring connections between the different switches, and the means of reducing the voltage are located. To every instrument, two

wires must lead from the switchboard, and in order to conceal these and prevent confusion, in the case of the switchboard illustrated, all the wires are led from the rear of the board into the wall or otherwise concealed, and thence conveyed to a place where each individual instrument can be conveniently reached. This depends

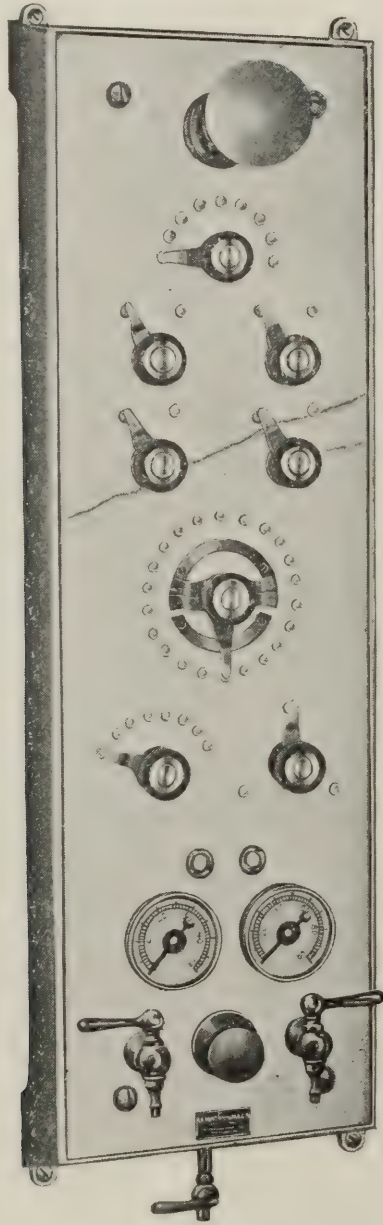


FIGURE 1

to a great extent upon the arrangement of the office. Where there is wall space within reach of the operator's working position, a very convenient arrangement is to have a shelf of onyx or other clean material placed below the switchboard. The wires are then led beneath the shelf and connected to the water heater, atomizer, annealer, etc., placed upon the top of the shelf; and to the low voltage instruments hung upon the face of the shelf; the cables, tubing or covered wire hang down from the instrument and double back underneath the shelf, the connection being invisible. Another

method is to have the water heater, annealer, etc., located where convenient on cabinet or table, the wires leading to them concealed as much as possible, the low voltage being instruments hung upon the front of a wooden panel, connected to the cabinet, and behind which the cables to the instruments are concealed. All makers of switchboards will supply them for mounting in dental cabinets, and many dental cabinets have recently been designed to accommodate them. This method has its advantages and disadvantages; the great disadvantage being that the switchboard loses its identity as an independent and complete piece of electrical apparatus. And then, too, in many cases it becomes more or less inaccessible and awkward.

THEORY AND DESIGN OF THE SWITCHBOARD.

REDUCTION OF THE VOLTAGE.

There are two methods of reducing the voltage. One is to pass the current through resistance and thus through what might be called line drop, reducing the voltage; and the second is to transform the current by means of a transformer. It is evident that by the first method, this can be done with both alternating and direct current, but by the latter method, with alternating current only. By the first method the voltage can be reduced and the current controlled in a number of ways, some of which waste current continuously, and far in excess of the amount required by the instrument used. A good illustration of this occurs in the case where the cautery is used. In the direct current type of switchboard, the voltage is reduced by means of a number of resistances in series in the line. The desired voltage then is obtained by board, the voltage is reduced by means of a number of resistances or as a shunt, or in parallel with part of the resistance. The accompanying diagram illustrates this. Between the points A and B are placed several resistances A. C; C. D; D. E; E. F; F. B; Between the points A. B.—110 Volts is applied, and should the sum of the resistances equal 220 ohms, by Ohm's Law, a current passing through the wire equals 1-2 ampere. The low voltage instrument then is either placed in series or is considered as one of these resistances, or is placed in shunt with one of them. For instance, C. D. might be considered as the cautery when placed in series, or G. H. when placed in shunt with part of the resistance. In the case of the cautery, it is necessary that 8 amperes pass through the instrument and from the diagram it is evident that 8 amperes must flow through the entire system, if the cautery be placed in series, and 16 amperes if it be placed as a shunt connection. Eight amperes flowing through each branch, making 16 amperes through the entire system. The amount of power consumed then must equal the amperage times the volts which, in the case of the series connection, equals $8 \times 110 = 880$ watts, or in the case of the shunt connection, $16 \times 110 = 1760$ watts. In the first instance

this means one and one-fifth horse power, and in the second case two and two-fifths horse power, roughly. It is therefore, self evident that reduction of voltage by means of resistance for those instruments that require a considerable sized current to operate, is very wasteful. This of course is not so important where a very small fraction of an ampere is required for operating instruments such as the mouth lamp.

In the case of the transformer system used to transform the voltage, the reverse is the case. The efficiency of a transformer ranges about 98%, or in other words, 2% or less of the power used is consumed by the transformer. In the case of the cautery there are 8 amperes x 6 Volts=48 watts actually consumed in the instrument itself, and as this high amperage has no relation to the 110 volts, this plus 2% represents the sum total of the power consumed when using the cautery, which you will note is about 1-15 of a h.p. The principle of the transformer was considered in Chap. where we saw that the primary or high voltage windings consisted of numerous turns, and the low voltage or secondary winding, of very few turns. The number of turns in each case being proportional to the voltages. It will also be observed that each winding is insulated and has no connection with the other. This system has, therefore, the advantage that it is impossible to give a person a shock from the high voltage by grounding the low voltage instruments. In the direct current system, however, you will note that the wire has a direct connection so that it is possible to obtain a shock by grounding the wire of the instrument. It is self evident then that the alternating current system is the more economical and safer. In many catalogues and pamphlet issued by various makers of electrical appliances, reference is made to shunt windings. An explanation of why it is necessary to connect the instrument in shunt or parallel with part of the resistance, might be interesting. The controlling switch in a delicate instrument such as those used in dentistry, is of necessity small and delicate, and is not of sufficient proportions to break a circuit across the full 110 volts. By referring to Fig. 2 it will be evident that should the instrument be placed between C. and D., the switch upon the instrument would sever the connection directly across the full 110

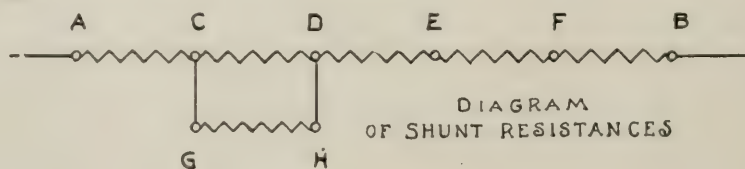


FIGURE 2

volt mains, causing a high arc due to the high voltage being applied across the terminals of the switch. It will be apparant, however, that should the instrument be placed between G. and H., the instrument switch will simply break the shunt circuit between

C. and D., and the high voltage circuit will still be in operation. The voltage applied across the terminals of the instrument switch will merely be that represented by the drop in voltage between C. and D. or a small fraction of 110 volts. A main switch must also be used to open the circuit between A and B.

CONSTRUCTION AND DESIGN OF SWITCHBOARD DETAILS

In any piece of apparatus, no matter how elaborate and perfect it may appear, there are certain details in the construction that are of the utmost importance. In the selection of a switchboard it is well to examine several things.

SWITCHES

An electric switch must be so designed and constructed that after it is closed there shall remain good contact. The most common form of switch is the knife switch, whose blade enters between two spring contacts. In most cases there is good contact made at this point except perhaps, where the blade is not properly in line so as to enter easily, and, through use, becomes bent and worn. The other end of the knife, however, in some switches, is entirely neglected and relies entirely upon a screw to make proper contact. Constant use wears the switch at this point, and a loose contact is the result. To overcome this difficulty in the knife switch, some manufacturers have inserted small spring washers which always tend to give the proper contact. The snap switch has been used for this purpose but on account of its construction and rapid operation it is not so reliable. It is more apt to get out of order.

DIFFERENTIAL RHEOSTAT

The function of a rheostat is to raise and lower the voltage, and the differential rheostat used on dental switchboards is for raising and lowering the voltage to suit the different instruments. The graduations of current must be finely divided so that sufficient range can be obtained; and each division must be positive, and make absolute contact, otherwise the regulating switch might be turned too far, and at this point, in consequence of the better contact made, the instrument might be caused to burn out. It is essential then that the regulating rheostat give good sure contact at every point. Both in the alternating current system and in the shunt D. C. system, the regulating rheostat should be so constructed that the high voltage line is intersected at the same time as the low voltage line. This will prevent the high voltage line being left in operation when the low voltage is cut out. Wires should not be connected on the back of the board by solder only, as it has been the experience that wire connections should be supported by mechanical means only, and if desired, solder added to make a closer connection.

In the next issue of the Journal, the electric engine, lathe and furnace will be discussed.

ADDRESS TO GRADUATING CLASS OF THE ROYAL COLLEGE OF DENTAL SURGEONS.

BY DR. W. PAKENHAM, DEAN OF THE FACULTY OF EDUCATION,
UNIVERSITY OF TORONTO.

This ceremony in this building makes this a significant moment in your lives.

It is a moment big with responsibilities. Childhood has come and gone. Youth is past. Adulthood is here. The elementary school and the high school have made their several contributions. The college has given its service. To-day the process of formal education ends, and you step forth into the work-a-day world, men and citizens.

It is also a moment abounding in hope. Life is not past, and the educational process has not ended. That process has only changed hands. It has ceased to be formal. It has ceased to be the work of an institution, and has become the work of the individual himself. And as the college drops the work, and the individual takes it up, the work assumes a different character and is built of different material. In a very special sense it now becomes original work. Alone, unaided, "far from help as years go by," equipped only with such powers as are your own, you now make your venture into the unknown. How will you fare in that venture?

It is idle to ask *you* that question. In the joy and cheer of this hour, you have but one answer. Youth ever hopes, and ever hears the call:

O young mariner,
Down to the haven,
Call your companions, . .
Launch your vessel,
And crowd your canvas,
And, 'ere it vanishes
Over the margin,
After it, follow it,
Follow the gleam!

It is almost as idle to ask that question of the staff of the Royal College of Dental Surgeons. They have worked beside you, and believe in you, and to-day have set their seal upon you. And yet, when asked that question, they *pause* and *deliberate*.

They cannot know you as you are to be.

The best measure of a man's work is the product of that work put to its full use. In that product lies, moreover, a corrective of blunders and a stimulus to renewed effort.

It is worth much to any man to feel within himself the creative impulse:

“ For this is still what graces man,
For which alone his mind expands,
That in his inmost heart he feels
What he created with his hands.”

It is worth something to a teacher's work to see the man of his moulding walking among his fellows and performing his daily duties and graces!

But the teacher may not see his work emerge in the ultimate man. His is no final product like the sculptor's. He works in one generation; his product, the man, reaches full fruition in the next. He sows his seed to-day, but the harvest is reaped beyond his vision of time and place. He ever builds towards a dream-image of man, ignorant of the final appreciation.

But mark you! when your instructor “pauses and deliberates” about the results of his work he is not at all uncertain about his methods. There *are* standards in education. The teacher knows what he must teach and the student knows what he must learn. There *are* criteria of excellence in education.

The life of each of us,—your life from to-day, presents two aspects to the world. There is the matter-of-fact, work-a-day aspect. Each of us must do his work in the world. Each of us must provide for the necessities of life, food, clothing, shelter. Each of us must consecrate a large part of life to routine and drudgery. To this aspect, the aspect of routine and drudgery, attach, for the most part, the monotonies, the worries, the burdens of man's existence.

Now, there is a fairy goddess who will help to lift from our shoulders these burdens of the routine of life. We call her “habit.” She makes heavy tasks light, and painful tasks pleasant. She is the great fly-wheel of society. For her sake, the miner works in perpetual night, and the settler follows in content the lonely furrow, and the fisherman dares the perils of the deep. She is the conservator of the world's progress. In her presence there is no need of delay, of doubt, of indecision, of the misery that accompanies indecision. Take habit, that fine complex of muscular habits, away from the physical act of rising in the morning—and sundown would find us all in bed, *deliberating*. Take habit, that fine complex of intelligence and manual dexterity, out of the professional equipment of the dentist, and none of us would survive the dentist's chair. To forego deliberation, that is, to become automatic in the lesser things of the law is to free the consciousness for the higher and nobler things.

Now habits are acquired best in youth and early manhood while the mould is still pliant and ere the sun and drouth of the midday of life have baked it beyond the possibility of new impres-

sions. We are young and plastic but once; life cannot be gone over again.

And habits are best acquired, not in words or books or lectures or in any form of oral instruction, but in action. The touchstone of habit is action, due and proper action, oft repeated.

And habits must be acquired. They are inevitable. In this respect our fairy goddess is a tyrant. She rules inexorably. By the age of thirty most of us are the servants of our past selves. We make new resolutions, but we cannot give ourselves new nervous systems. Then, in Omar's imagery:

" The moving finger writes; and, having writ,
Moves on: nor all your piety nor wit,
Shall lure it back to cancel half a line,
Nor all your tears wash out a word of it.

So man cannot choose between habits and no habits. He may choose between good habits and bad habits. His goddess may be a beneficent or a malevolent tyrant.

Here then lies implicit one certain standard of excellence in education, professional or otherwise. In the routine aspect of life, you need a store of good habits, or the capacity to create such a store of good habits. If, in these days of your youth, in season and out of season, the staff of this college have striven to give you good habits or the power to evolve good habits, they have complied with the first standard of excellence in education.

This is not the place to classify good habits. They are the simple virtues of childhood written large. You know them. Nowhere so well as in the professions do mortals practise them. Some of these habits are: accuracy, order, industry, courtesy, intellectual sincerity, professional honor.

No one can escape habits. So, no one can escape the routine aspect of life. It is common to the race. In fair weather or foul streets are to be cleaned, engines to be stoked, and milk to be delivered. Artists have their moments of tedium, and dentists must keep their appointments.

" We only toil, who are the first of things."

" We only toil, who are the roof and crown of things."

But life should not be all routine. The world is not a gigantic factory. Man does not live by bread alone. To commit the whole of life to the safekeeping of habit is unbecoming to a free man!

And so there are, and should be, cases in the great deserts of the drudgery of life, where man may stop, and rest, and rejoice. It is here that he takes his fate into his own hands, and becomes his own master. Here the well-oiled mechanism disappears and the individual appears—thinking, feeling, and initiating!

This brings us to a second aspect of life, that aspect, which in the absence of a better name, we may call the leisure aspect. As habits fill the routine of life, so interests fill, or should fill, the leisure of life.

The Greeks felt the significance of leisure. They placed their ideal of life in the right enjoyment of leisure. They trained men for leisure, not for work. They taught men music, and art and literature and rhythmic movement that they might adorn their leisure moments with noble interests.

We moderns, even such of us as are Anglo-Saxons, recognize the significance of leisure. We say:

Take care of the leisure moments, and the routine moments will take care of themselves.

A man's worth is to be judged by his way of using his leisure hours.

In the right use of leisure is happiness; in the wrong use is—bondage!

The measure of a man's joy in life is the measure of that man's interests in life.

You remember the cry of Tennyson's Ulysses:

“ Much have I seen and known; cities of men
And manners, climates, councils, governments—”
and now

“ How dull it is to pause, to make an end,
To rust unburnish'd, not to shine in use!
As tho' to breathe were life”
. “and vile it were
For some three suns to store and hoard thyself,
And this gray spirit fearing in desire
To follow knowledge like a sinking star,
Beyond the utmost bound of human thought.”

In his own way every man is Ulysses. His mind is open and eager. He is driven forward by never-ceasing curiosity. He *must* and *will* have knowledge.

But his interests shift. They seem to-day to shift from objects that have given a peculiar flavor to our Saxon civilization. Let me illustrate:.

Home has always held a Saxon's first interest. But when one considers the new relations of the home, and especially of the man of the home, to the club, the restaurant, the boarding-house, and the apartment-house, and the new relations of the home, and especially of the woman of the home, to the problems of finance, of industry, of politics, and (perhaps) of domestic life, and the ceaseless efforts of the courts to adjust men and women to the old conceptions of the home,—when one considers these things, one is forced to feel that the Saxon interest in the home is shifting.

The Saxon loved the out-door life. But we Saxons everywhere now become a town people. A few parks with cinder paths and keep-off-the-grass signs, well-shorn lawns, a flower in a window here or there. These make up our out-of-doors. For the rest, the counter, the office and the workbench!

Our Saxon fathers loved play. The village green, the long twi-

light, old and young, boys and girls, innocent and healthful games; these made up the Merrie England of history. But the green is gone, and the parents, and the girls, and even the games. We do not play. We pay to see play. We have almost forgotten how to play. We have lost the very spirit of play!

The Saxons understood the productive processes. Their interests were industrial. But work has been divided and subdivided. "I run this machine which threads this screw," said a Toronto workman. "I can run no other machine. This is the only machine of its kind in Toronto. Out of this position, I am helpless." The mechanic in the great city factory does not know his employer, does not know his fellow-workman, does not know the product of which he makes a part, is himself only a number. "No admittance," not rarely is written over the door of that factory. "No admittance," not rarely, is written in spirit over its processes.

Now, to shift interest from old and worthy objects does not necessarily mean to destroy interest. Interest persists, and must find expression. Rejected in one form it reappears in another sometimes noble, not rarely ignoble. More so than the monotony of drudgery man dreads the monotony of leisure. Against that monotony he often reacts and protests in his passion for pungent sensations. The "wise" world recognizes that reaction and exploits it. It organizes play for profit. It adds "thrillers" to our public shows. It maintains the tawdry procession, cheap theatres, and public dance-hall, the betting-ring, the gambling den.

Interests then should be worthy.

They are manifold, infinite in variety, and enjoyable. My young friend finds a worthy interest in a collection of postage stamps. Sir Ernest Shackleton's supreme interest lies at the very verge of human endeavor. One of yourselves, a dental surgeon and our great Ontario entomologist, paid the last debt of nature within the year. Dr. Brodie's was a choice spirit. He was Browning's Grammarian:

"Let me know all! Prate not of most or least,

Painful or easy!

Even to the crumbs, I'd fain eat up the feast."

And interests must be replenished unceasingly. They tend to pass into habits, and fall into the routine of life. The countryman does not notice the clouds and the sunsets. The townsman does not notice the rush and roar of the streets.

Here then lies implicit another certain standard of excellence in education, professional or otherwise. In the leisure aspect of life, you need a store of worthy interests and the capacity to replenish that store. If, in these days of your youth, in season and out of season, your schools and your instructors have striven to give you worthy interests, they have complied with this second standard of excellence in education.

This is not the hour to classify worthy interests. You know them.

Some are scientific and connect themselves with man's conquest of the world of sense.

Some are social and connect themselves with movements in behalf of religion, temperance, personal hygiene, public health, industrial education, play-grounds, vacation schools, medical inspection.

Ninety per cent of school children have impaired dentition. A Philadelphia boy ran the downward course rapidly through restlessness in school to suspension, theft, the Court of Juveniles, the House of Detention. A clinic discovered impacted dentition. Treatment was followed by a rapid recovery through the upward course to moral equilibrium. Was it cause and effect? The school offers a wide field of interests to the dental surgeon.

Many worthy interests are professional, and connect themselves with the progress and honor of your profession.

The honor of your profession! A last and chief interest!

No eye can see it, or understanding quite fathom it. It is based not upon profit or upon sympathy with the patient, but upon a high ideal. That ideal, woven now into the very fibre of the profession, is born not of text-books but of heroic services in the past. You learn the lessons of professional honor not from science or mathematics but at the feet of men.

Proceedings of Dental Societies

PROGRAMME OF PAPERS OF THE C. D. A.

TUESDAY, MAY 31st,

- 10.30 to 2.30—Registration.
 2.30 p.m.—President's Address.
 3.00 p.m.—Paper, by Dr. W. H. Whitslar, Cleveland, Ohio.
Dental Operations which Prove a Menace to the Hard or Soft Tissues of the Mouth.
 Discussion opened by Dr. Chas. Morrison, Montreal, Que.; Dr. Chas. E. Pearson, Toronto, Ont.; Dr. F. D. Price, Toronto, Ont.
 8.00 p.m.—An Illustrated Lecture by Dr. W. H. Whitslar, Cleveland, on the **Human Hand**.
 8.30 p.m.—Paper, by Dr. D. Norman Ross, Winnipeg, Man.
Dead Pulp and Their Sequelae.
 Discussion opened by Dr. A. V. Lester, Hamilton, Ont.; Dr. D. J. Berwick, Montreal, Que.
 (Ladies invited to hear Dr. Whitslar this evening).

WEDNESDAY, JUNE 1st.

- 9.00 a.m.—Paper, by Dr. D. D. Smith, Philadelphia, Pa.
Oral Prophylaxis.
 Discussion opened by Dr. McColl, Buffalo, N.Y.
 10.30 a.m.—Prophylaxis and other Clinics and Demonstrations.
 2.00 p.m.—Paper, by Dr. S. G. Ritchie, Halifax, N.S.
Proper Field of Silicate Filling.
 Paper, by Dr. Harold Clark, Toronto, Ont.
Proper Field of Porcelain Inlay.
 Discussion opened by Dr. C. A. Murray, Moncton, N.B., and Dr. A. A. Babcock, Brantford, Ont.
 3.30 p.m.—Clinics and Demonstrations.
 8.00 p.m.—Paper, by Dr. W. R. Greene, Ottawa.
The use we are making of the Casting Process.
 Discussion opened by Dr. Joseph Nolin, Montreal, Que.; Dr. Casgrain, Quebec.

THURSDAY, JUNE 2nd.

- Trip to Niagara Falls.
 10.00 a.m.—Business Meeting on boat; Elections; Reports and Educational Reports. Report of the Dominion Dental Council. Report from the Canadian Oral Prophylactic Association.

FRIDAY, JUNE 3rd.

- 9.00 a.m.—Clinics and Demonstrations.

OFFICERS OF DENTAL SOCIETY OF WESTERN CANADA, 1910-II.

- President—M. H. Gavin, Winnipeg.
 Vice-Presidents.—D. M. Mitchell, Fort William; H. Darling, Edmonton; W. D. Cowan, Regina; J. E. Ross, Winnipeg.
 Secretary-Treasurer.—Manly Bowles, Winnipeg.
 Programme Committee.—A. E. Clint, Chairman, Winnipeg; H. W. Christie, Winnipeg; K. C. Campbell, Winnipeg.
 Membership Committee.—W. W. Wright, Chairman, Winnipeg; A. E. St. John, Winnipeg; G. C. Matheson, Winnipeg.

OTTAWA DENTAL SOCIETY.

REPORTED BY M. F. CROSS.

The Ottawa Dental Society closed the season's series of meetings April 7th, in a blaze of glory, that is if forensic pyrotechnics may be so designated. It was their annual banquet, and banquets in Ottawa, and among Ottawa brethren of any ilk are a little different from what could be possible anywhere else in Canada. Ottawa is to Canada oratorically what Athens was to Greece or The Eternal City was to the Roman Empire. The centre to which the country sends her best and brightest minds to battle for the principles held dear in different sections of the Dominion. Thus from youth upwards aspirations are stimulated and ambitions fired. "The applause of listening Senates to command. To read their history in a nations eyes," etc., even though all hearts do not become "pregnant with celestial fire." As near to the goal of their ambition as most ever reach, is to get on a toast list and indulge in a post-prandial canter which usually requires the services of a steam brake or gavel to confine within the four corners of what might safely be termed a canter and not an oratorical flight or elopement with the goddess of speech, "To float and run like an unbodied joy, whose race has just begun."

NUFF SED.—We refrain advisedly for divers reasons from attempting to give, verbatim, either the spirit or substance of the material unloaded from over-crowded craniums around our festive beard. Ottawa oratory is the despair of all imitators, and much harm might come to those of the profession who might attempt to emulate its example. Further harm might accrue to the Ottawa brethren from pilgrims to said city, to attempt to grasp the spirit and genius of its speech. Verily "Charity begins at home," and vaunteth, not, etc.

After doing justice (not the poetic kind) to the choice viands of mine host Walby the toast to the King was fittingly dealt with. President's address was then briefly given by Dr. A. E. McCordick, who spoke of this as the closing of perhaps the most successful year in the history of the Ottawa Association. Lectures were for the first time given to the students in training at the Normal School and General Hospital. He urged the members to keep at it, as this was but the beginning of a great movement of educating the public along the lines of dental education.

THE R. C. D. S. was ably and eloquently proposed by Dr. Harry Graham. Dr. Jno. Robertson in reply traced the growth of the college from when he attended in the seventies, (the college being then located in an old building on Victoria Street) to its present splendid quarters which in equipment and facilities for teaching was second to none in existence.

Dr. Chas. Martin, who is always received with three rousing cheers, thanked the boys for not forgetting him, and said he hoped to be able to be with them next year, but felt the measure of sliding

sand was in active operation. Dr. Martin is the Doyen of the profession, being probably the oldest dentist in active practice in Canada. His reminiscences of dentistry as it was, are always very interesting. One feels on hearing him to be in the presence of the connecting link between Dental Chaos and Dental Excellence.

CANADA AND THE EMPIRE.—The piece de resistance was splendidly presented by Dr. Milton Armstrong, who is rapidly shaping into an orator *par excellence*. Dr. S. S. Davidson in response gave a very finished speech, expatiating upon Canada's great resources, her position in the Empire and the glorious prospects before her, but a slight allusion to a possible change of Government in the near future, was met with groans and other manifestations of disapproval from the waiters, etc., behind the screens.

Dr. M. F. Cross was followed in support of the same toast. Here is where we gasp. It gives us pause, when we recall the fate of the secretary last year (Dr. Leacy), who, in attempting to find words to do justice to the Doctor's oration, threw a fit. It required the full contents of several bottles of stimulant to resuscitate him. No more attempts from this end of the line to indite the mellifluous eloquence. "That hath its listeners wrought, To sympathy with hopes and fears it heeded not."

We remember of his passing over the natural assets of Canada as well covered ground and descanting upon what Canada had done for herself in enacting legislation relative to the betterment of the standard and moral uplifting of its citizens. That we should be grateful that the pioneers in our legislation have been men who were cognizant of the fact that "Righteousness Exalteth a Nation," etc.

"OUR PROFESSION" was well presented by Dr. O. Martin, who gave full measure of credit to Dr. J. B. Willmott for the present status of the dental profession in Ontario. Drs. W. R. Greene and L. V. Lyon briefly and pointedly responded.

"OUR CITY," proposed by that most versatile genius, Dr. Mark McElhinney, who had just landed in from an aviation stunt, said one of the best assets of any city was the status of its professional men. Dr. Ald. Ira. Bower fittingly replied.

"THE LADIES," by Dr. Milton Graham, who considered Woman's honor the grandest of the human virtues and that it was our sacred duty as dentists to keep such unsullied. Drs. C. M. Dent and Geo. McElhinney did full honors, replete with many witty sallies. Everybody heartily united in "Auld Lang Syne" and departed saying the 1910 banquet was the best ever.

NOVA SCOTIA DENTAL ASSOCIATION.

Announcement is hereby made that The Dental Association of the Province of Nova Scotia will hold its Twentieth Annual Convention at Halifax, on Thursday and Friday, July 14th and 15th, 1910.

Efforts are being made to provide the best programme of clinics, demonstrations and papers ever offered to this Association.

Mr. Hough, S. S. White's porcelain expert, will in all probability be one of the clinicians.

Dr. Wright, of New Glasgow, will exhibit products of his new Dental Manufacturing enterprise, and will give a clinic on casting.

Other members of the Association will give good papers, clinics, etc.

The resources of the Maritime Dental College will be made use of for clinics and meetings.

We want the help and co-operation of every member of the Association, to make the Convention a success.

DEAR DOCTOR:—

In order to ensure the success of our Convention, we want *your* help. Will you kindly fill out the blanks below and return to the Secretary,

R. E. MACDONALD,

St. Paul Bldg., Halifax.

I agree to contribute to the programme of the Twentieth Annual Convention of the N. S. Dental Association the following:

Title or subject:

Paper

Clinic

Demonstration on

would like to see a clinic on

Signed

RECENT GRADUATES OF THE ROYAL COLLEGE OF DENTAL SURGEONS.

Thomas Wilmot Bleakley, Charles Wesley Brown, Roy Hugh Browne, Warren Edward Bruce, Dalton Clifford Casselman, James Berton Carmichael, Norman Caven Carmichael, Charles Hedgers Chamberlain, Alan Lippy Church, Thomas Walter Dawson, James Durran, Thomas Carlyle DeMille, Clarence Eli Eastwood, Orville Arthur Elliott, George Bueton Hardy, Peter John Healey, Gustavus John Hope, John Mansfield Hughton, Simon Herbert Hutt, Andrew Clinton Kerr, James Chisholm King, Myron Lewis Laidlaw, Frederick George Law, Sangster Lederman, Lloyd LeRoy Matchett, Herbert Stuart Macartney, Milton Lewis Moore, R. M. McIntosh, Charles Roy McIntyre, Claude Archibald McBride, John Spurgeon McDougall, Arthur Charles McKenna, James Albert McTaggart, Arnold Rea, Harold Mills Richardson, William Ross Rodger, William Reid Somerville, Albert Edwin Slack, Walter W. Sleeth, Charles Edward Williams, Otto Levi Weaver, Charles Harry Weicker, William Elphiston Wray and Eric Lyons Young.

RECENT GRADUATES OF LAVAL UNIVERSITY.

C. A. Trudeau, J. A. Trudeau, R. Bellemare, Is. Blondin, C. Lamothe, A. Landry, M. Choubon, (France); J. L'Huillier, (France); Fish, (Suisse), Fernandez, (Republique Argentine), Restor Rodriguez, (Bresil).

The Lethbridge News on April 22nd, 1910, published in full the pamphlet on the care of the teeth, recently sent out by the Canadian Prophylactic Association. If dentists would suggest to their local newspaper men to do likewise, much would be done to preserve the teeth.

DOMINION DENTAL COUNCIL OF CANADA—NOTICE OF EXAMINATION.

Notice is hereby given that the next examination for the certificate of qualification to be granted by the Dominion Dental Council of Canada will commence on Tuesday, the seventh day of June. The examination will be held simultaneously in all of the agreeing provinces of Canada.

Those eligible to take the examination are the following:—

Class A.—Those who commenced the study of dentistry subsequent to the first day of January, 1906, are registered as students, and meet the matriculation requirements. These can take the progressive examination under the rules prescribed.

Class B.—Those who were registered students in any of the agreeing provinces on the first day of January, 1906. These can take the progressive examination under the rules prescribed.

Class D.—Those who were registered licentiates in any of the agreeing provinces on January 1st, 1905; who have been in "regular, legal, ethical practice" in one or more of the agreeing provinces, but who have not yet completed the ten years necessary to place them in Class C, may take the examination prescribed for Class D.

Take notice that all applications should be in the hands of the Secretary by the first of May.

For full information regarding the D.D.C. and the forthcoming examination write the Secretary, Dr. W. D. Cowan, Box 325, Regina, Sask.

Dominion Dental Journal

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All Communications relating to the Business Department of the Journal must be addressed to the **DOMINION DENTAL JOURNAL, 3 College Street, Toronto, Ontario.**

VOL. XXII

TORONTO, MAY 15, 1910

No. 5

WHY NOT BE PRESENT IN TORONTO MAY 31ST AND JUNE 1, 2, 3.

There is not a human desire which should exist in a dentist that the Executive Committee of the C.D.A. and O.D.S. has not attempted to satisfy at the coming combined meetings in Toronto, May 31st, June 1, 2, and 3, 1910.

SEASON.

The season of the year is the most delightful. The cold, damp weather of the early spring will have passed and the hot, dusty weather of summer will not have come. Vegetation will be at its best. Attending Dental Conventions is part of the education or work of the dentist. The convention is held during the working period of the year. It does not interfere with the usual summer holidays. It comes at a time when most dentists desire a few days rest after a long season's close attention to practice.

TRANSPORTATION.

The transportation facilities are the best possible. A single fare return on the certificate plan for all Canada and a large portion of the Northern United States. Those coming a long distance have a month in which to return.

SIDE TRIPS.

Toronto is an ideal Convention city. The hotel accommodation and local points of interest are unexcelled. Short over-Sunday trips at single railway fare are run to all important points within a radius of one hundred miles or more. Such well-known resorts as the following may be so reached, Muskoka, Georgian Bay, Lake Simcoe, Niagara, Points on Lake Erie, and Lake Ontario, Thousand Islands, Rice Lake, Stony Lake, and all cities and towns within these areas.

PROGRAMME.

The Programme Committee of the Ontario Dental Society and the Canadian Dental Association can always be depended upon to give something of interest and of value to the every day practitioner of dentistry. Examine the wide scope covered in the programme as printed in another part of this issue. No small feature of the programme is the clinic. There will be at least 75 selected clinics.

EXHIBITS.

All the important Dental Supply Manufacturers of Canada and the United States have already secured space and will make every effort to show their supplies and demonstrate them. There will be a regular series of manufacturers demonstrations. No small amount of a dentist's success in practice depends upon his equipment. The dentist who does not know enough to have an efficient and up-to-date equipment is usually deficient in other branches of his calling. To see the dental exhibits alone, will be worth the trip to Toronto.

EDUCATION.

The standard of civilization of a country can be safely judged by the interest taken in education; so the standard of dentistry practised in Canada can be judged by the interest dentists take in dental education. During the past two or three years a great impetus has been given to dental education among the masses. Not twenty-five per cent. of the people of Canada know anything of dentists professionally. At the coming meeting there will be a great centralization of all the efforts in this direction, throughout Canada. Better and more effective plans of progress will be presented. While it may be important to give the public a knowledge of what a dentist can do for the health and comfort of the people; it is equally or more important that the profession shall be worthy of the confidence and come up to the expectations of the public. In this respect every dentist in Canada must of necessity be inter-

ested in maintaining his own standard of ethical and professional training, and as well be interested in the education of those who are about to enter the profession. The dentist is interested in the character of education provided at the different dental colleges in Canada, and the kind of examinations set by the examining boards. The dental examiners will be present to discuss these matters in which you are so vitally interested. You will have an opportunity of seeing the new Dental College Building in Toronto, which is said to be the best on the Continent. The profession of Ontario will be especially interested in this aspect of dental education. Dentists of Canada should be educated in Canada. In no country in the world does so large a percentage of the dental profession attend a dental meeting as in Ontario. There has often been over one-third of the profession in the province registered at a meeting.

ENTERTAINMENT.

The entertainment provided for this meeting is well in hand, and will be the most enjoyable possible. A committee of ladies will be at the command of the visiting ladies at all times. They will arrange social entertainments to ladies' liking. A full day's trip will be taken to Niagara Falls, leaving Toronto at 9 a.m., returning at 6 p.m., On board the boat a session of the convention will be held. The boat will land the passengers at St. Catharines, where trollies will be ready to take them to the Falls, where lunch will be served at the Clifton House. Arrangements are in progress to see all the large power and manufacturing plants for which the district is noted. The City Council of Toronto has made a grant of three hundred dollars to help to defray the expenses of the trip. The members of the Society will be the guests of the City and of the Society. Dentists outside of Toronto may be accompanied by one lady as a guest.

GOLF.

A golf match is arranged for Friday afternoon over the Lambton Golf Links. Dr. F. R. Mallory, 2 Bloor St. West, has this matter in charge. The dentists' wives of Toronto may entertain any of the visiting ladies to afternoon tea or dinner at the club. Every dentist in Canada who plays golf is expected to bring his golf clubs with him and have a game over what is considered to be the best golf course in Canada, and the fourth in point of interest on the continent.

BOWLING.

Dr. George Grieve has completed arrangements for a bowling tournament. Rinks not fully filled will be arranged here by a committee. Bring your bowls with you, and we will do the rest.

CONCLUSION.

If a dentist can resist all this in addition to the pleasure of meeting those whose occupation and ambitions are alike with his,

and the satisfaction of meeting old friends and making new ones; then we have fear for the future of Canada. If what the Executive has prepared does not appeal to dentists they must be a peculiar human species indeed.

OPEN THE COLLEGE DURING THE SUMMER FOR PATIENTS, STUDENTS AND GRADUATES

TORONTO A DENTAL EDUCATIONAL CENTRE.

Each year as the number of dental students increase in Toronto and the number of graduates of the Royal College of Dental Surgeons increase and spread all over the Dominion the centralization of dentistry in Toronto increases. There are more graduates of Toronto in Canada than from all other sources combined. It is the great centralizing element in the profession. All graduates look toward Toronto for stimulation and help. About the College has grown up large dental manufacturers. Local dental supply houses have sprung up, and all the important dental manufacturers of the world have either branches or local agencies here. The college itself has recently erected a magnificent building. It has developed a system of education peculiar to this country, and adapted to its needs. The staff is chosen with an eye to efficiency only. In the city and surrounding country has developed a high standard of excellence in practise. Ontario and Toronto are the centre of dental education in Canada. The profession of Toronto and of Ontario have not yet awakened to a full realization of the position they occupy and will be forced to maintain in relation to dentistry in Canada, if Canadian dentistry is to have a distinctive mark. The Faculty of the Dental College and the Board of Directors must be the central moving spirit, supported by the dentists of Toronto and the province.

THE COLLEGE AS A PUBLIC BENEFACTOR.

In the past the dental college has been looked upon as a means of educating dental students only. This was sufficient until it had developed a large number of graduates, who naturally look to their Alma Mater for stimulation and education throughout their professional career. The college has always been a factor in educating the public in the value of dental services. This has been unconsciously done. The time has now come when the college must broaden its ideals and purposefully do what it has done unintentionally. The dental infirmary was originally organized, and ever since conducted for the purpose of dental education, and sometimes we regret to admit for financial returns. While in the great majority of cases patients who offered themselves as clinical material—for such most of them have been looked upon—received the best possible treatment, it has often occurred in recent years that operations which were least expensive to the college were recommended. The infirm-

ary should be looked upon from a philanthropic as well as educational aspect. The profession can never take its place as a great educational factor in the land until it is prepared to do all that is possible to educate those who come under their care as patients. The dentists in many cities and towns in Canada have organized dental hospitals for the care of those needing services and unable to pay a professional fee. If dentists outside of Toronto can do this where the clinical material cannot be used for educational purposes, how much more reason is there for doing it in a city like Toronto, where all the facilities are at hand. At the present time there is a large staff of trained professors, lecturers, clinicians and demonstrators in connection with the college. There is a plant which has cost over a hundred and fifty thousand dollars. This large investment is used only seven months in the year. It is doing little more than half the good it might. There is a large number of students and practitioners ready to do the work. The necessity is great for national, educational, professional and philanthropical reasons.

THE COLLEGE AS A PRECEPTOR.

The Board has abolished the preceptor in Ontario so far as the first two years of a student's education is concerned. This is quite correct, but to make the best of a student's time he should have more time in practical operations under instruction, than the college course at present provides. To fulfill this requirement and at the same time to take care of the needy in the summer time, a committee of the Faculty, of the college was appointed by the Faculty Council, which reports that in its opinion, the college infirmary should be open during May and June to begin with, and students who take this course between the second and third years should be exempt from having a preceptor between the third and fourth years. By such a course the sophomore at the end of such a course would have had quite as much practical experience under instruction as the present junior at the end of his winter course. After this kind of course has run for a few years the college should take over the complete preceptorship of the student.

A PRACTITIONER'S COURSE.

As pointed out in the early part of this article the college must take its place as the centre of dental education in Canada. It cannot do this and neglect its graduates. If it has not the good-will of its alumni it cannot get students. There was a time when the R.C.D.S. was not on a par with the best dental educational institutions of the United States. To-day the leading dental educators of the United States cheerfully admit that it is fully equal to their best, if not in advance. If the alumni of the R.C.D.S. were induced to attend a practitioner's course in Toronto they would realize the change that has been wrought in the past few years. Besides this, it is a question which is forcing itself upon the Board and the Faculty. There are scores of dentists going to the United States annually for such an education as their alma mater is equipped to

teach, and should be willing. The college building and equipment are lying idle when it would be needed for such a course. There is an abundance of patients for clinical purposes. The staff are prepared to assist in organizing and carrying out such a course. There are many dentists anxious to take it. There is no one factor at the present time in dental education in Canada productive of so much good to the dentists and people of Canada as a properly conducted practitioner's course in the Royal College of Dental Surgeons.

WHAT DOES IT MEAN ?

Dr. F. R. Mallory who was chairman of the Clinic Committee of the Ontario Dental Society, 1909, wrote 128 personal letters to dentists in Ontario asking them to assist on the programme by giving a clinic, or taking part in the discussion of some of the papers which were to be presented. After two months he had received only three replies either favorable or otherwise. At a meeting of the Executive Committee of the Canadian Dental Association he reported having written thirty letters inviting members to take part in a golf match during the Convention. In three days from the time the letters were written he had received six replies. Dentists must be more business like in their sporting capacities than they are in their professional capacities, or they are exceedingly modest concerning their professional attainments.

SENIOR CLASS DINNER OF THE R.C.D.S., 1910.

The senior class of the Royal College of Dental Surgeons of



R.C.D.S. GRADUATING CLASS, 1910

Ontario are to be congratulated for the excellent year dinner which they gave at McConkey's restaurant on April 28th, 1910. A large number of the Faculty were the guests of the class. The Dean's remarks concerning the success of a dentist, and the stand for ideals in social, professional and political life were well received. As each year goes out we note a higher standard of character and professional attainment. The accompanying cut shows many familiar faces which will be long remembered among the students.

THE HUTAX PREPARATIONS.

The Canadian oral prophylactic Association has closed a five year's contract with Lyman Brothers Limited, Toronto, Montreal, for the manufacture and marketing of all the Hutax mouth preparations. The Association has reason to feel pleased with the success its preparations have had. The present manufacturers are one of the largest wholesale Drug manufacturers in Canada. Their business extends from coast to coast. They have been favorably known to the drug trade for over fifty years.

TORONTO DENTAL SOCIETY.

The closing meeting of the Toronto Dental Society was of a social character. The president Dr. H. E. Eaton and Mrs. Eaton, assisted by Dr. and Mrs. McDonagh, received in the Turkish room, before the guests sat down to dinner in the palm room at Mr. McConkey's restaurant, Tuesday evening, April 19th, 1910. After dinner was served Mr. Ruthvan McDonald sang two songs, after which Mr. Willison, editor of the Daily News, delivered an address on his impressions of English people as he saw them during the recent Election Campaign.

Editorial Notes

Dr. F. A. Blatchford, of North Bay, is now practising in Fort William.

Dr. F. C. Husband has been ordained an elder in the presbyterian church.

Dr. F. D. Price's father died in his eightieth year at Camden, Ontario, April 24th, 1910.

The Dental Profession of Canada will meet in Toronto, May 30th, June 1st, 2nd, 3rd, 1910.

Dr. M. H. Steele, of Almonte, has purchased the practise of Dr. H. W. de Renzy of Carlton Place.

A Post Graduate Dental School has been opened in Berlin, Germany, under Dr. Erich Schmidt, 133 Potsdamer Strasse.

Dr. Fell of Winnipeg, was a successful candidate for the degree of D.D.S. at the recent examinations held at Trinity College, Toronto.

No dentist in Canada can afford to miss the combined meetings of the Canadian Dental Association, and the Ontario Dental Association.

Dr. W. G. L. Spaulding announces that after May first he will be established in new offices, Suite 701, Lumsden Building, corner of Yonge and Adelaide Sts., on the seventh floor.

A Committee of the Faculty of the Royal College of Dental Surgeons of Ontario have had the curriculum of the College under discussion for two months, a report of which will appear later.

The Dental Society of Western Canada held a very enthusiastic meeting in Winnipeg, April 18th and 19th, 1910. A full report of which will appear in this and the next issue of the Dominion Dental Journal.

In the April issue of this Journal appeared an editorial note stating that Dr. Bleakley, of North Gower, had taken over Dr. Brown's practise in Prescott. It should have been that Dr. O'Callaghan of Kars, took over Dr. Brown's practise.

Dr. F. H. Miller, formerly of Aylmer, Ont., now of Chicago, has purchased his former practice from Dr. Graham; Dr. Miller has been chosen as the liberal candidate for the Canadian House of Commons, for East Kent. The Dental Profession will be anxious to see him elected.

FOR SALE—Dental Practice, situated in a wealthy community; five railroad trunk lines; population 16,000; office centrally located; thoroughly appointed; good fees, mostly cash. Correspondence solicited. Ill health. Apply 557 TALBOT ST.
ST. THOMAS, ONT.

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FOR SALE—Dental practice with furnishings, etc., in growing western Ontario city. Good reason for selling. Apply to Box 5, Dominion Dental Journal,
3 College Street, Toronto.

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Dominion Dental Journal

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TORONTO, JUNE 15, 1910

No. 6

Original Communications

PRESIDENT'S ADDRESS OF THE CANADIAN DENTAL ASSOCIATION, MAY 31, JUNE 1, 2, 3, 1910

A. E. WEBSTER, M.D., D.D.S., L.D.S., TORONTO, CAN.

GENTLEMEN:—This is the fifth meeting of the Canadian Dental Association. It is fitting that an organization of the importance of the Canadian Dental Association should hold its meeting in this magnificent building, dedicated to the teaching of Dentistry. This building is only one of the evidences of progress in dentistry, since our meeting in Ottawa, two years ago. Since that time the Maritime Dental College has begun to teach dentistry in Halifax. A corps of teachers in that province, which has been the school house of the Dominion, has set themselves to educate dentists for Eastern Canada. In Montreal, McGill University has made arrangements with the Montreal General Hospital to have its students taught dental practice as one of the departments of the hospital. In the same city, Laval University, has erected a special building for the department of Dentistry. From Winnipeg comes the news that when the University of Manitoba is finally established, provision will be made for dentistry.

At the Ottawa meeting, Dr. G. K. Thomson, read a paper on school dentistry, and at the close of the meeting the Canadian Oral Prophylactic Association was appointed to do what it could to promote dental education among the people. The report from this Committee, and that from the Educational Committee of the Ontario Dental Society, will no doubt surprise many of you. The value of dentistry in the preservation of the health of the nation is recognized to-day as never before. Departments of Education and Agriculture are seeking the knowledge of the dentist. In recognition of the value of the dentists' services, and what is to be gained from such a convention as this, the City Council of Toronto has made a grant of three hundred dollars (\$300.00), to help defray the expenses.

The profession has been so taken with the idea of preventive dentistry, that the programme of this meeting is largely in that direction.

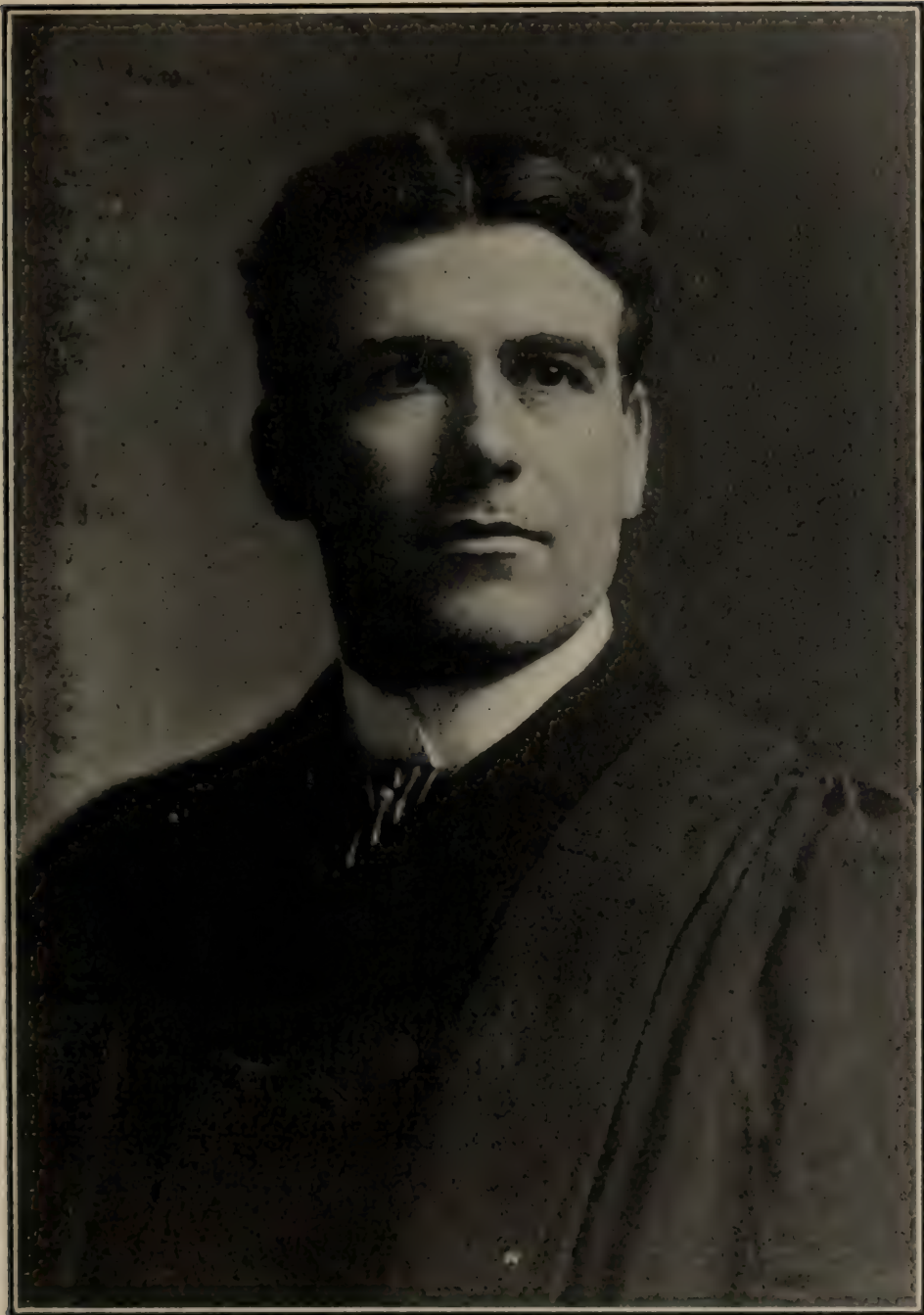
Prevention of infection and contagion in dental practise is not always what it might be. In some cases ordinary cleanliness is not observed. While in others, much intelligent effort is expended. While in some rare cases the maximum of care, effort, and intelligence is not assured of immunity to infection or contagion. It is a fortunate thing for the human race, that there are so many requirements for infection, before it will occur. This is especially true for those who have anything to do with the treatment of disease and the maintenance of health.

Before life may start and be maintained, there must be the initial germ; there must be a proper temperature, there must be moisture, there must be suitable pabulum. If an organism be given all these conditions, and does not mature, it will die. As is exemplified in the production of grain. All the conditions mentioned being favorable, life will attain its highest perfection which is to reproduce itself in its own likeness. It has been found that organisms, which have not the conditions favorable for their development may remain dormant for months or even years, and suddenly spring into life as soon as conditions are favorable. It is also noteworthy that some organisms which find development difficult sporulate. The spores are much more resistant than the organisms. Even boiling will not destroy many varieties of spores.

Life is influenced by its environment. If any of the requirements of life are gradually modified—not being sufficient to destroy—new characteristics may be developed. This micro-organisms, which were at one time very virulent, may become benign, vice versa. The first cases of contagious disease are often more virulent than those later in an epidemic.

The most susceptible persons get the disease first, and the organisms become less virile, because of the resistance of those having the disease. Those persons who do not take a given disease readily, are said to be immune to that disease. An attack of many of the diseases, so raises the resistance that the person is immune from another attack of that disease for years. Immunity may be raised by artificial means, before, or during an attack, e.g. diphtheria, typhoid, staphylococcus and streptococcus infections.

It is clear then, that a person who is resistant enough to a given organism, will either destroy it altogether or force it to grow under such adverse conditions that it will change its characteristics. Thus we are immune to our own micro-organisms. We may have streptococci in our mouths, and though we force these germs into the vital tissues, no infection will occur. The resistance has been raised and the virulence of the organisms



A. E. WEBSTER, M.D., D.D.S., L.D.S., TORONTO, CAN.

President of the Canadian Dental Association, 1910.

has been lowered. Thus little is to be feared from infections from instruments, which were sterile at the beginning of an operation, and have become infected from the patient in the course of the operation. It must be remembered that immunity is often local. We may resist infections in the mouth from organisms, which are there, but if these organisms were injected into the hand or other parts of the body, infection would occur.

While we may be resistant to our own organisms, these same organisms may be very virulent to another. Thus instruments

which become infected in one operation are a vital source of danger to another, unless sterilized.

All bacteria are not disease producing, and if they cause disease it is only an incident in their lives. It is not the physical presence of the bacteria which causes disease, but either the enzyme or waste products, which cause the local or general disturbance.

There are many other principles of organic life, which might be interesting, but enough has been said to point out that life develops characteristics in accordance with the surrounding conditions, and unless these conditions are favorable, life will not develop at all. Upon this principle depends the whole idea of present day agriculture, and the maintenance of health by the prevention of the growth of organisms. The whole idea is well illustrated by the German farmer, when asked how he got rid of Canadian thistles from his fields. He said: "I never let them into the fields." Then the way to treat decay of the teeth is to never let it begin. The way to treat pyorrhea, is never to let it begin. The way to treat an alveolar abscess from an infected canal is never to let it become infected. And though this is almost impossible in some cases, yet if the canal is dry and no suitable pabulum be present no infection will occur. The way to treat infection from the hands or instruments is not to allow the tissues to become infected from them. The way to prevent infection around a filling, is not to allow any infection to remain in the cavity before the filling is inserted.

Then the chief thing in dental practice to prevent infection is to make the conditions for the growth of micro-organic life unfavorable. Since most organisms are occasionally or often present dependence in their non-development must be put in making conditions unfavorable by having no dust, no carpets, no absorbing drapings or furniture about a dental office. No unclean instruments, sweepings or wet plaster left about to attract flies or organic growth. If possible, everything about an office should be kept dry. Cleanness and dryness are the main hope. Since organisms will always be present, but in an attenuated conditions, if cleanliness abounds, it is necessary to sterilize. The means of doing this depends upon first of all mechanical cleanliness; second, unusual temperatures, and thirdly, poisons. High temperatures are usually the most certain, but not always so. Do not depend upon poisons for the disinfection of instruments, which are recommended for the so-called disinfecting of wounds. No preparation which may be used as a mouth wash, or upon vital tissues will destroy micro-organic life. If it did, it would be unsafe to use on vital tissues. The virtue of a disinfectant or sterilizing agent depends upon its ability to destroy life, and this will destroy vital tissues. I wish to press this home with all the force I may, because I have seen such preparations as

are commonly used for mouth washes used for disinfecting instruments. I have seen infected instruments dipped into borolyptal or Pasterine, and wiped off within thirty seconds, and used in operations on vital tissues. It is well that the human tissues are not always favorable to the growth of micro-organisms, or there would be many sad mishaps in surgery. This is what might be called unwise effort in disinfection. There is no solution so satisfactory for disinfecting dental instruments as formaldehyde in water 3 to 10% with borax added to prevent the rusting of the instruments. No method of sterilization should be depended upon unless it has been shown by one in whom you have confidence that it will do what you desire.

For present information and future record, it will not be uninteresting for me to explain to you why the meeting of the Canadian Dental Association is this year combined with the Ontario Dental Society. On other similar occasions the local society has given away to the national organization. This, in the opinion of your President, would have been a mistake at this time. The Ontario Society has reached such a magnitude and has so many committees and sub-organizations, whose reports must be made annually that there would be a loss of continuity in the work of the society, if it should suspend for a year. There are other reasons of equal importance, which time does not permit to set before you.

The arrangement between the two Societies is as follows:—

The two Societies shall equally bear the expenses of the meeting. Each Society has placed a certain amount of money at the disposal of the new executive, and when the meeting is closed the deficit or profit will be shared alike. Your President having the authority to appoint a local executive for the meeting, did so and these appointees meet with the local executive of the Ontario Dental Society, and struck the several Committees which have had this meeting in charge. Dr. C. A. Kennedy, the Treasurer of the Ontario Society, has kindly consented to act as Treasurer of this meeting. Each Secretary will make his own minutes.

This method of organization has proven to be very satisfactory, and the results, will, I am confident, justify the anticipation of the largest and most profitable meeting ever held by either Association. Each Committee, and especially the Chairmen are to be congratulated for the excellent programmes which they have prepared. No President ever worked with the various Committees of a meeting of this kind with greater satisfaction. In fact, he felt as if all the responsibility had been removed. He desires now to express to them his personal thanks for preparing such a magnificent programme. The Society is to be congratulated upon having such painstaking and experienced members on its Committees.

MILLER MEMORIAL.

For some time the Miller Memorial fund has been before the Profession. In Europe, and Australia especially, a large sum has been raised by subscription. In America, the fund has not, up to now, received as much attention from the Profession as its merits should demand. In Canada, no organized effort has yet been made to assist in this meritorious work. I would suggest that this matter be discussed at this time, and an effort be made to assist in making a fund which will perpetuate the memory and continue the work of the Profession's most noted scientist.

CONSERVATION COMMISSION.

The Conservation Commission, recently appointed by the Dominion Government, has a department of public health. The scope of the work which they propose to take up, as set forth in their first report, will naturally include the conservation of the human teeth. They perhaps do not now fully appreciate the value of good teeth in the conservation of the public health, but it is the duty of this body to at once, and put this matter before them. The Commission could perhaps do more to conserve the public health along the lines of oral hygiene, than in many other directions which they might follow. I would suggest that this matter be discussed, and the President appoint a Committee to take such action as in their opinion will do most to interest the Commission in this department of public health.

GIFTS IN DENTISTRY.

In England, Germany and the United States, large gifts have been made towards assisting in the care of the teeth of the poor and middle classes. The most noteworthy of these is a gift of \$1,000,000 by an Englishman, whose name is not given. The fund is not to be used for caring for the teeth of the poor only, which the municipalities should look after, but for assisting the middle classes to have all the advantages in the care of the mouth that are enjoyed by the rich. In Canada, where all but the very few can afford to have the advantages of skilled dentistry, such a donation could be used to great advantage in dental educational matters. As less than seventy-five per cent. of the people in Canada consult a dentist, though fully ninety per cent. or more would live longer, and enjoy life more, if they had a better knowledge of the relation of the condition of the mouth to the general health. If the members of our Profession would interest themselves among their wealthy friends, there is no doubt but a sufficient gift could be obtained to endow departments of original research in dentistry and dental education of the public, which would bring more real happiness, good health, good morals, and good citizenship to the people of the Dominion than many of the large gifts which have for their purpose heaping up stone, mortar

and brick, as a monument to the donor. The advantages of such a gift would be seen in the beauty, comfort and happiness of the people, hence little observed by the thoughtless. Any wealthy man in Canada could be made to see the value of such a gift, if some member of the Profession took the pains to explain the situation to him. I would suggest that the individual members think this matter over.

PRESIDENT'S ADDRESS OF THE ONTARIO DENTAL SOCIETY, MAY 31, JUNE 1, 2, 3, 1910

H. A. CLARK, D.D.S., BROCKVILLE, ONT.

GENTLEMEN:—On behalf of the Ontario Dental Association, I wish to express the pleasure it gives us in meeting with the members of the Canadian Dental Association.

We trust that each and every member will go away from this meeting feeling that his time has not been lost, but that he has received new ideas, and will be able to go back to his work feeling better prepared to perform his professional work than ever before.

This meeting gives many of us our first opportunity of inspecting our new college, which has been recently erected at a very great cost, and we are glad to be able to state that it is second to none on this continent.

Before offering the few suggestions, which have occurred to me during the year, I wish to thank my fellow officers and the members of the different committees who have so ably performed their work. Whatever success, which may have been attained at this meeting is wholly due to them, and the credit is their's alone. It is not my intention to give you any lengthy discussion on the scientific principles of Dentistry, for such will be taken up by the able men, whom we are fortunate enough to have with us at this time; but I wish particularly to mention a few facts, which must necessarily appeal to each, and every member of this Association and the profession of dentistry as a whole.

I wish, first to give a few moments to the subject of the examination of school children's teeth. This, has no doubt been brought up before, but to my mind nothing is of so much vital importance, not alone to the dentist but for the welfare of the community at large, from the standpoint of health and hygiene.

Every one of us can see in our daily practice, evidences of the lamentable condition that obtains among the children, whose mouths we have to examine, this being particularly true of the children of the poorer classes.

Such a condition lessens their mental and physical capacity, making them less capable and able of application and comprehension; poor students and therefore less desirable prospective citizens

of their respective communities, to say nothing of the danger of infection and contagion to other children, who are compelled to come in contact with them.

Too much pressure cannot be brought to bear on our town, city, provincial and federal governments, in order that they may see this matter in the same light as the medical and dental professions view it. Some concerted move should be made by our societies to bring about some intelligent action, whereby the children in the schools should receive better dental instruction, and an oral inspection, that their parents may become enlightened, and thus know the true condition that exists in the mouths of their children, particularly those between the ages of six and twelve years.

The responsibility rests with us as a profession, a responsibility, which we should not shirk, not only as a profession, but as good citizens of the community, in which we live.

We must thank the Canadian Oral Prophylactic Society for the action they have taken in preparing pamphlets, and distributing same to the teachers and professions of the Province of Ontario. They have labored hard, and have given generously of their time to advance the general knowledge of dentistry with the masses.

While the necessity of the care and attention of the teeth pertains to the general education of the public as a whole, nevertheless, when all this is accomplished, and we have inspection of childrens' teeth at regular intervals, we have something more than this that will require a great deal of thought and consideration.

Let us assume that we arrive at the stage when inspection is regularly made and reported, it will be found that possibly two thirds of the parents of the children will be financially able to afford the expense of dental attention, while the remaining one third are not.

What is to be done? Where are they to receive proper professional treatment? Who is to pay for it?

These are questions hard to answer. They require a great deal of consideration, and I think it is for us, as a professional body, to grapple with the problem, and find a solution if possible.

The people in this country, who are unable to pay proper fees for dental work comprise a great number.

We, in Ontario, know of the good work done by Dr. J. G. Adams, of this city some years ago, but we cannot afford to give up so much of our time, as the practice of dentistry is most arduous. A Physician can make a dozen or more calls and prescribe for patients, while we are doing a simple operation. The ordinary charitable work therefore, is not so great a tax upon the time of the medical profession as upon the dental.

Hospitals are provided for the sick, and the poor are treated

free. Many of these cases no doubt are directly traceable to im-
proper mastication, and yet we go on from day to day without any
thought or attempt to remove the cause. What about the con-
ditions in our government institutions, particularly our asylums?
The patients whose relatives are financially able to pay for treat-
ment (provided they are well enough to be permitted out with an
attendant), may receive proper treatment, but the rest have to
be satisfied with the physician extracting the teeth, one by one
as they cause trouble, until they have nothing left, with which
to masticate. Then what happens? They are forced to bolt their
food as best they can, and nothing more is said or done.

Have any of you ever visited one of these institutions, and
observed the condition of the teeth of the inmates? A glance in
passing through is all that is required to convince you that there
is something lacking, something radically wrong with the system
prevailing in these places; and it is high time that the Govern-
ment should be aroused to the fact that a dentist should be em-
ployed in every institution. This would no doubt be welcomed by
the medical superintendents and physicians in charge, and some
steps should immediately be taken to overcome this state of affairs.

Now with reference to the poorer classes of the general public,
how are we to arrange for their treatment?

Could we establish a dental infirmary in connection with our
hospitals? The only objections that I can see to this, are first,
that we might find other than charity patients taking advantage
of this; and secondly, every community has not such an institu-
tion as a hospital.

Could we get sufficient aid from our governing bodies, such
as municipal councils, and provincial governments? Could we
invite the government's consideration to apportioning a yearly
sum from the succession duties received, already being devoted
to philanthropic and charitable purposes. Could we solicit bequests,
as is done for other charitable work?

I think, this is a matter that should be taken up with our
governments, both federal and provincial, and further helped, if
necessary, by the governing bodies of each community.

In bringing this matter before you, I hope that some action
will be taken so that in the near future we may have compulsory
examination of teeth in schools, and that there will be an office
or infirmary for the poor to receive proper treatment.

In conclusion, if the importance of this subject sufficiently
commends itself to your consideration, I would like the privilege
of naming a committee to take the matter up, with a view to devis-
ing best ways and means of arriving at some practical modus
operandi of interesting the governments, and of accomplishing the
results aimed at.



| H. A. CLARK, D. D. S., J. I. S., LICKVILLE, CNT.

President of the Ontario Dental Society, 1910.

DISCUSSION.

DR. IRWIN: Ladies and gentlemen, you have heard the addresses of the two Presidents, and it has been agreed by the Programme Committee, I think, to discuss them together. The subject is open now for your discussion.

DR. READE: Mr. Chairman, the time is short and I will not wait for anybody to get up before me, but I would like to make a few remarks to-day, about one of the sections of the address of the President of the Canadian Dental Association. The part I wish to speak of in Dr. Webster's address, is that relating to the International Miller Memorial Fund. You all know who W. D. Miller was, one of the brightest minds in dentistry, a man who was born and educated in America. He went to Germany, and after being there a number of years, was re-called to his own country to take charge of the Dental Department at Ann Arbor; you all learned with sadness a short time after he arrived here, he died, without being able to take up his duties. This man was well known, the world over; he had no local reputation, he was international. Now, this man was appreciated by all nationalities, as you will readily understand when you know that at the meeting of the International Dental Federation in Europe, it was proposed that a fund should be raised to perpetuate his memory. This fund was subscribed to by all nations. He belonged to everybody, he was too great to belong to one nation. Now, the form of the memorial must be such as would suit a man of his character. The memorial determined on was to be a fund that would not only perpetuate his name, but would be the means of carrying on the work that he so well began. This they knew from the man would be most pleasing to him. Now, a fund has been collected in a number of European countries. There are men in charge of it from several countries, from France, England, Spain, and Germany, and also from the United States. The fund is to take this form: Money is to be collected, to be invested at present in a German Bank, with a capital of over three hundred million marks, so it is very safe. The interest derived annually from this fund is to be given to the man who has done most to advance the interests of his profession, and it is to take the form of a diploma, a medal, and a sum of money. It is to be hoped that at some time a Canadian will have made such research, or will have done such work, as will entitle him to this prize, from his confreres throughout the world. In Canada nothing has been done as yet towards contributing anything to this Miller Memorial Fund, and it certainly would be a shame if at some time a Canadian was awarded this prize, and that he should be humiliated by knowing that his country had contributed nothing towards that fund. Now, in order to see what can be done throughout Canada, in relation to this fund, I would propose of considering ways and pointed for the purpose of considering ways and means. The Committee I propose is not a Committee that will take up the work, but a Committee to consider means and ways, and to appoint a Committee that will take up the work, because the men on this Committee I propose to appoint will know bet-

ter the names of the men in the different Provinces, who would be willing to give their attention to a matter of this kind. This Committee will report again shortly to the meeting, and tell what has been done. The names that I would propose, are: Dr. Seccombe, Dr. Smith of Cornwall; Dr. A. E. Webster, Toronto; Dr. W. J. Bruce, Dr. Garvin, Dr. Dubeau, Dr. Gendreau and Dr. Thomson.

DR. R. GREENE, (OTTAWA): Mr. Chairman, Ladies and Gentlemen: It affords me very great pleasure to second this resolution, so ably proposed by Dr. Reade. I believe, we as Canadians should always be ready to recognize any movement for the advancement of our Profession, which means the uplifting or benefitting of the human race, and I believe, that this movement mentioned in the resolution, is certainly for the benefit of our Profession. I have great pleasure in seconding the resolution.

DR. SECCOMBE: I assume the mover of the motion, Dr. Reade, will be on the Committee. He has evidently given this matter a great deal of thought, and I think he ought to be a member of the Committee himself.

DR. GREENE: Dr. Seccombe's name is on first as convenor of the Committee.

DR. SECCOMBE: I would suggest that Dr. Reade's name be substituted for mine.

THE CHAIRMAN: Dr. Greene has made the motion and will probably include Dr. Reade as one of the Committee.

DR. GREENE: Certainly, I would be very pleased to.

THE CHAIRMAN put the motion, which, on a vote having been taken, was carried with applause.

THE CHAIRMAN: Is there any further discussion on these addresses?

DR. McLAUGHLIN: Mr. Chairman, I think, if there is one thing that the Programme Committee, has to regret in making up this Programme, it is that no particular arrangement was made for the discussion of the Presidents' addresses. They have come to all of us as very important addresses, as they should be. The President's address, to my mind, should be the key-note to the whole Convention, and I think they have both carried out this idea this afternoon. Now, no one of us, I am sure, is able to properly discuss the important matters that have been brought up in these addresses on the spur of the moment, and I have not got on my feet just to do that sort of thing, but simply to draw your attention, particularly to, and to emphasize one phase of Dr. Webster's address, and that is the part referring to the Conservation Commission that was appointed at Ottawa some time ago, in which Dr. Webster refers, and suggests that this Convention appoint, through their President, a Committee to lay before the Commission at Ottawa the importance of the health of the teeth, and the importance that the health of the teeth bears to the health of the body. As Dr. Webster has told us, this Commission has a

Medical Department, to put it in that way, and it is very important at this stage, that we should bring to the attention of this Commission the important relation the teeth or dental hygiene bears to the health of the whole body.

Now, I think, the suggestion made by the President is a very wise one, that he be allowed the privilege at his leisure during this Convention of appointing a Committee that will have some considerable influence over the Chairman of that Commission, and over the members of the whole Commission, so I would move that the suggestion made by Dr. Webster be carried out, and that he have the privilege of appointing a Committee at his leisure during this Convention, and that that Committee interview the Chairman, and all of the members of the Commission appointed at Ottawa.

DR. WOODBURY, (HALIFAX): Mr. Chairman, while this subject can hardly be comprehended at this moment, I have much pleasure in seconding that resolution. I have no question that if this Committee presents this subject in a vigorous way it will receive a hearty welcome from the Commission, and will achieve important results.

THE CHAIRMAN put the motion, which, on a vote having been taken, was declared carried.

DR. SECCOMBE: Mr. Chairman, and Gentlemen: I am very glad indeed, that action has been taken on this matter of the Conservation Commission, and I hope to hear that it will have practical results. I had understood that this Commission's work was more along the line of investigation, the prevention of the pollution of the streams and water-ways, investigation along the line of tuberculosis, taking up the question of immigration, upon the question of national health and quarantine, and questions of that kind, working hand in hand with the different Provincial Boards of Health. However, certainly no harm can be done, and possibly a great deal of good may be the outcome of an interview with this Commission, and I sincerely hope that it may have the practical results which our Presidents hope for.

There is just one phase, of President Webster's address I would like to refer to, and that is the question of the aseptic practice of dentistry, and the aseptic arrangement of a dental office. This phase of the educational question must of necessity be taken up by each province, because it will readily be a matter between the Governing Boards of the Province and the licentiates, which they send out to the public.

The whole matter of education was discussed in a recent meeting of the Board of Directors of the Ontario College, and it was thought that this matter of asepsis in practice was one that belonged to the Boards of the different Provinces to deal with, and the matter of the education of the public might well be left

to organizations, such as the Provincial organizations and other organizations throughout the country.

Now, in Ontario, in this matter some progress has been made in as much as the Board appointed a Committee, and empowered that Committee to go ahead and spend money, if in their judgment any material could be collected, which could be sent out to the licentiates in Ontario, which would prove helpful, pointing out the necessity for the aseptic practice of dentistry, and the proper arrangement of a dental office. This Committee have invited Dr. Graham, the Professor of Bacteriology on the staff of our College, during his holidays, to get together some material, (and material from other sources will be collected), and I hope by next fall an official bulletin will be issued by our Board in Ontario, on this very important question, pointing out to the licentiates that if they do not practice dentistry along antiseptic lines, that they are certainly creating a breach of discipline, and that the Discipline Committee in Ontario will have just cause for investigation, if any dentist should continue to practice dentistry in such a way that his patients would be liable to contract any disease.

Now, I would like to compliment both of our Presidents upon these splendid addresses, and to add a word to what Dr. McLaughlin has said with regard to the discussion of these addresses. It seems to me his suggestion that these addresses should be given to someone before hand to open a discussion upon them, is a splendid suggestion. The address of the President of the Ontario Dental Society is also worthy of a great deal of attention, but as it covers the matter of education, and as I understand that this matter of the education of the public is to be taken up on Thursday, on the way to Niagara, the discussion of that paper may well be left, but otherwise I am sure the members would be very glad indeed to discuss Dr. Clark's address as well. (Applause).

DR. THORNTON: Mr. Chairman, there was an item common to the addresses of both men, that I think we might give some slight attention to, even though it may bring in a little discussion. I remember when we were in Montreal, the Montreal people took us to the mountain, that we might have a little more extended vision. I rather felt, as it were, that the President of the Canadian Dental Association, while there was no mountain in Toronto he could take us to, might metaphorically have taken us on a mountain to give us an extended vision of our opportunities, at least. Both men mentioned the fact that we had in Canada a great percentage of our people, who cannot pay for dental operations, and unfortunately we know that this is true. Perhaps, it is simply a verification of that Scripture which says, the poor ye shall always have with you, but as I know the dentists of Ontario, I believe there is a field they might enter, where they could perhaps do a work equal to that done by Dr. Miller. Why should

we always have so vast a number of people who are unable to pay for dental operations? As I have sat here, I have heard the street car going by, and the men on the street car are average wage earners, they get 22 cents an hour, \$2.20 a day, \$13.20 a week, if they work six days in the week, and no man can live in the City of Toronto, and afford to pay for dental or medical services for himself and family, on \$13.20 a week. I would like to see the members of this Profession take some interest in the question of sociology, that they might try at least to devise some plan by which a larger number of the wage earners in this country would be able to earn a sufficient wage, that they would not have to receive these things as a matter of charity, but whereas men, without being made paupers, might pay for their medical and dental services, and for every other service which a white man should have, in a white man's country. (Applause).

DENTAL OPERATIONS THAT ARE A MENACE TO THE TEETH AND SURROUNDING TISSUES

W. H. WHITSLAR, M.D., D.D.S., CLEVELAND, OHIO.

Read before Canadian and Ontario Dental Associations, May 31, June 1, 2, 3, 1910, Toronto, Ont.

The earth began, as we are told by geologists, in the cooling of heated clouds, the mist condensing to form water, and eventually earth and rocks appearing. This was followed by vegetation, then anamaleculae and larger animals, all dependent upon each other. The wonderful works of the Creator culminated in man, who was a perfect being. As man multiplied, distinct races arose; social and other phases of life increased, bringing into consideration the laws of heredity and environment. All of these preliminary conditions are antecedent to the topic we have for our discussion today. The subject must include them, though not so vital as the immediate history of ancestry, which frequently lends charm to the processes of reasoning from cause to effect. The subject assigned to me, however, is really a consideration of man's mistakes. It concedes, therefore, that we as dentists are sometimes mistaken, but with a trained mind and hand, and a special dental training, a suitable performance of service should be given to his fellowman. All of these faculties being apparent, there should be underneath a quick perception of conditions, without conscious attention, designated as intuition. If this natural acumen is strong the process of diagnosis in disease is rapid and prognosis divined with greater certainty.

It is my desire at first to impress this fact, that many of the faults of bad operations upon the teeth are due to poor diagnosis, which further leads to bad judgment, for, the one is founded

upon the other. In this we perceive the possibility of entirely wrong operations being performed.

Example.—There are times, rarely however, when the first permanent molar should be extracted. These are difficult cases to determine, and the temptation to extract this molar when broken down is powerful. To foresee the results of malocclusion in a case of extraction is not only good diagnosis, but rare judgment, if future disaster is prevented. Many examples could be given, wherein dependence upon diagnosis is all important.

Having made a diagnosis, the greatest question one can submit to himself is, "Will this operation restore these tissues to a normal condition, whereby their function is made the best?"

What may be the natural condition in a mouth, may not be a normal condition of the teeth and surrounding tissues. In such a case improvement can be prescribed. Observe a mouth in which the dental arch is irregular. The subject apparently lives well, the dental arch is natural to him, but it is not normal. Nature established his condition imperfectly, due to some hereditary conditions, or, all too frequently, because of improper extraction, or retention of the teeth. In this the standard or rule of the development of the dental arch has been altered, and the symmetry is lacking. To normalize this condition the orthodontia pre-determines the results of applying forces to this and that condition ere the teeth and jaws are brought into their normal occlusion. In performance of these operations he may make errors of adjusting these forces. He may use poorly constructed or ill-fitting appliances, which retain food, causing decay of the teeth and irritations of the gingivae, cheeks or tongue. Too rapid movement of the teeth may cause pericementitis and even death of the dental pulp. The application of force in the wrong direction, or improper retention of the teeth are detrimental to the teeth and surrounding tissues. Constant movement of the teeth does not allow nature to follow with depositions of lime-salts sufficient to keep up the equilibrium. More serious than all these is the possibility of disturbances of digestion, neurasthenia, and even nervous prostration to be considered. Orthodontia is a serious operation to subject some children to, for no doubt cases occur which require the keenest insight to the welfare of the child. Insanity has been produced by orthodontia operations.

In the question of diagnosis, the dental specialist, like all other specialists, is ever subject to having his judgment warped in favor of his own specialty. The specialist perceives more clearly the conditions pertaining to the line of study he is engaged in, and ordains their superiority over others. In consequence of this, his judgment may suffer. The crown and bridge specialist might offer his particular service, the prosthetist would desire an artificial denture, and the one interested in the treatment of

pyorrhea alveolaris advise saving teeth, when extraction is desirable.

Are people safer in the hands of a very intelligent all around dentist? My answer is, "Yes," because he is able to predict failure for himself if he undertakes the work of a specialist in which he knows he cannot be successful. He knows his safe course is to refer the case to a specialist and thus safeguard his own reputation. This decision in the first place, was based upon his diagnosis, and its value cannot be over-estimated.

I have thus emphasized the first importance of diagnosis to lessen the possibility of menacing the teeth by improper operations.

The hereditary conditions of the mouth and teeth may preclude the possibility of doing any service which does not have some detrimental influence to the teeth. Likewise diseased teeth frequently are beyond the pale of comparative restoration. This is because there are no reparative tissues to utilize, as in general surgery.

Dentistry performs restorative and constructive service unequaled by the surgeon frequently. While the reparation is mechanical, it is built upon a *living base*, which constitutes the operation *surgical science*.

Dentistry has for its object the conservation of the teeth in order to masticate food properly, to assist in speaking, etc. Every operation that falls short of assisting these functions is detrimental and a menace to health.

The operations that may be a menace to the teeth and surrounding tissues are many, but it may be said that the fault lies mostly with the technical skill in their execution.

The beauty of practicing dentistry is the variety of study it affords, giving food for scientific thought and decision.

Every condition in the mouth is correlated to some other, hence when deciding what is best for one tooth, its relations with the adjoining and opposing teeth are necessary. If a filling is to be inserted, the kind of filling, if any, in the next tooth is to be noted so as to have similarity of materials both as to color and physical qualities. Durability and strength of filling materials are given precedence over color or cosmetic effects in most all operations. When teeth are beyond filling the question of extraction, or using them as foundations for artificial teeth becomes momentous. Judgment dictates the removal of diseased teeth and adjacent tissues seriously affected by abscess or purulent discharges that are not amenable to treatment. The retention of such conditions serve as irritants to the surrounding tissues and also to the nervous system, which may result in neuritis, neurasthenia, and even insanity.

It is complimentary to the dental profession that a medical insanity expert should make exhaustive studies to learn the possibilities and certainty of many cases of mental disease being

instigated by the teeth. Dr. W. S. Upson,, of Cleveland, Ohio, is thus contributing to medical science valuable data. From these we are taught that every means should be taken by dental practitioners to eliminate abscessed conditions, also impacted and some unerupted teeth. The skiagraph is the principal means of arriving at a correct diagnosis in these cases, and should be used more frequently in dentistry.

Formerly the wholesale extraction of teeth was considered the greatest offense in dentistry. In 1879, a noted writer, Dr. J. W. White, stated that there were twenty millions of teeth extracted annually in the United States. For a time it would seem that this number increased, as we observed the large exhibits of extracted teeth before so-called "Dental Parlors." These exhibits are disappearing, and now many "snags" are utilized for the wonderful discovery of the age, the "Alveolar Method." This is another misnomer that has crept into publicity. It is a species of graft applied to dead and decayed timber, (teeth), whose only sprouts are dollars poured into the pockets of pretenders.

It is often a serious question to decide whether it is better to extract teeth and advise a denture, or retain some, and use either a partial denture or a bridge. Strong teeth are necessary for a partial plate or a bridge. Both methods are a menace to the teeth and tissues supporting them, but this may be condoned if a reasonable service for a considerable time is certain. The pros and cons of the situation should be explained to the patient and his preferences weighed.

Bridgework properly constructed is one of the greatest blessings to humanity, but sometimes the foulest mouths are those containing it. I have seen fractured jaw-bones held firmly and mastication made perfect by bridgework. It is known to have caused extreme nervous debility and insanity. The covering of roots of teeth under a bridge is reprehensible, and filthy practice, if the bridge is not attached to them.

The greatest menace to the teeth by crowns and bridgework is the effect upon the gingivae. The adaptation of this work to the piers is difficult and often is mismanaged, because the gingivae are not measured before bands are fitted. By carefully examining the gingival margins with a probe, it will give a proper idea of the distance under the border a band may be made to extend. Unless the fitting is perfect the edges become irritants and the beginning of all forms of inflammations are likely to occur and destruction of the tissues follow. This begins as a traumatic disturbance of the dental ligament. When this is destroyed an undue strain is placed upon the principal fibres of the peridental membrane, which from overstrain become neurasthenic and a passive condition obtains. From this it is only a step to interstitial gingivitis and a general break down of the membrane. The difficulties arising from these causes is a story in itself.

I have no doubt that many bridges are inserted when a denture would be better in every way. Even these will distort and irritate the tissues at times, to say nothing of the inartistic arrangement of the teeth.

Dr. J. Leon Williams, who is now perfecting models for artificial teeth, will revolutionize many of the staid forms of teeth and awaken the average dentist to the greatest possibilities of artistic, as well as the practical construction of dentures. This anatomical perfection will insure greater masticatory power and conserve the tissues.

It should have been mentioned that in the preparation for bridgework or crowns, splitting of roots, is a serious defect. Fracturing both roots and alveolus in extracting teeth is productive of much pain and after effects, especially if impure hypodermatic injections are used.

One of the greatest boons to humanity is the preservation of the teeth by filling cavities produced by decay. Dangers from these operations arise in the excavation of the cavities, near approach to the pulp, capping of pulps, and unusual destruction of tooth structure. Or, if the tooth pulp dies, then its removal and filling of the canal constitutes an operation that may forebode the greatest trouble that can arise in dentistry. The excitations produced by clamps, ligatures, separators, separating the teeth, and filling materials, are incomparable to the imperfect results of root fillings. Opening up canals, drilling through the walls, allowing filling to protrude into the apical space, suggests the nucleus of direful disturbances. To enter into a discussion of this phase of our subject would require many pages to describe it fully.

Dr. L. N. Broomell has shown the effect of large masses of gold to be harmful to a living tooth. For instance, there may be a disintegration of the enamel in connection with cement, which disintegrates beneath masses of gold. Also, diseases of the pulp will occur, which result in their death. No one should fail to read Dr. Broomell's article published in the Dental Cosmos for April, 1910. Each one of the above factors could excite a discussion as to their demerits pertaining to filling operations and materials.

In completing a filling one of the difficulties is to finish it so as to have a normal contour, and not disturb the tissues at the cervical margin of the tooth. The contour should be such as to extend beyond all points of contact and to serve as an incline for food to naturally fall into the cavity of the mouth. By contour, also service is rendered to obliterate food spaces between the teeth. These spaces invite disease of the gingivae and peridental membrane. Careless separation of the teeth, will also promote the same difficulties. The preservation of the gingivae from accidental or careless operating is second only to the filling of carious teeth. The preservation of the interdental spaces is of greatest

importance. What is true of fillings is also true of inlays, either porcelain or gold. The ideals are the same, but there may be a tendency to allow the filling in the crevical part to go without careful reducing to the exact edge of the cavity. The inlay properly constructed usually demands more sacrifice of the tooth structure than fillings inserted in the old way, but they are less likely to damage the pulp or gingival tissues. Inlay filling has taught clearly the importance of "extension for prevention."

There are few medicaments used in dentistry that are harmful. However, it is well to state that destruction of the dental pulp is sometimes accompanied by pericementitis or even destruction of the membrane unless great care is observed in the use of arsenious acid. Nitrate of silver, concentrated solutions of hydrogen dioxid, zinc chlorid, phenol, and sulphuric acid, are other caustics that may be used detrimentally to the teeth and tissues. Discolorations of the teeth due to nitrate of silver are produced by forming albuminate of silver, which acts as a resisting force to decay. Oil of Cassia used in pulpless teeth discolors, because of furfural, a chemical, which turns brown on exposure to air and light. While cocain is a protoplasmic poison when brought into contact with living tissue, its specific action is utilized in producing paralysis of nerve endings in dentistry. Solutions of cocain should be made at the time of their use. Ready-made solutions are dangerous, because of their decomposition after exposure to air. Careless injections of cocain may produce inflammations of the mucous membrane, and also be contaminated by the poisons of specific disease. Dr. Herman Prinz has recorded in his *Dental Materia Medica and Therapeutics* very interesting cases of psychic disturbances by injections of cocain.

The conclusion of this paper would not be complete without reference to the subject of so-called "Cleaning of teeth." Let us dignify it as an "operation," by letting it have the merit of calling forth the finest manipulations possible. It is not an ordinary procedure, though treated as such by many. It has a range of removing microscopic plaques to that of calculi as large as a hen's egg. With a perfect operation it promises immunity from decay and recovery from pericemental diseases, due to extraneous substances. Careless, thoughtless, and unskilled manipulation with improper instruments induce disease, leaving injury and filth everywhere. Microbic nests are in every corner, awaiting conditions to propagate larger colonies. Dental decay may run riot, the gingivae ulcerate, dental ligament melt away and the fibres of the membrane lose their grip upon the alveolus and the tooth is forever lost.

One of the greatest mistakes dentists have made in the past, has been the slight attention given to the removal of all foreign materials from the surfaces of the teeth in a thorough manner, and polishing these surfaces afterwards.

It is not only fair but just that a great tribute should be given to Dr. D. D. Smith, of Philadelphia, who has pleaded, urged and demonstrated to the profession, the great value of treatment, now called "oral prophylaxis." With such ideals of treatment consummated and thorough mastication of food mastered, may we not look forward to that condition of man spoken of in the beginning of this paper, the Perfect Man.

DISCUSSION OF DR. WHITSLAR'S PAPER.

BY DR. CHAS. MORRISON, MONTREAL, QUE.

The paper which we have just listened to, it appears to me, is one which does not seem to allow of much discussion. The reason of this is, that there are no definite unproved theories advanced, but it is simply a resume of simple facts, which we, as practising dentists, should all know. After reading the paper a couple of times it struck me that possibly these simple facts were just what were needed, as there is no doubt a great lack of care exhibited in many of the dental operations of the present day. This was probably the object for which the paper was written, and we congratulate the essayist.

It is well that the profession should constantly be kept in mind of the fact, that a dental operation, performed carelessly is almost certain to be a menace to some of the tissues of the mouth, and this paper should therefore be taken as a very potent medicinal dose by all present. If the disease is not present, then the medicine can do no harm.

In all the walks of life the man who does his work conscientiously and intelligently will have his satisfactory results, while the careless man is bound to have frequent failures. And these failures on the part of careless operators it must be remembered are not always due to lack of ability, but in many cases can be attributed to the fact that he tries to accomplish more work in a given time than it is possible for him to do.

In these days of progress, as applied to our profession, we are too apt to be carried away by the new ideas and methods that are from time to time being put before us. These ideas and methods would seem to enable us to get through more work, obtain good results and with less cost to our physical energy. I do not disparage the new methods, but is it not true that in many cases our patients would be much better off with the more simple operations, carefully performed. Probably, the most simple operation we have to perform is the insertion of an amalgam filling. The color of the material does not blend with the color of the normal tooth, and yet a compound amalgam filling, well contoured and finished is a work of art, and in most cases has permanent results. Such a filling should never be inserted without the use of the matrix, and should always be polished at a subsequent sitting. This would in

many cases take considerable time, and the dentist, basing his charges on so much per filling, finds that the fee is inadequate.

Caps are fitted, and crowns and bridges are adjusted, and cemented in a hurried and slipshod manner, and neither the patient or the practitioner can have the maximum amount of satisfaction with the result. The solution of the difficulty is simple; charges should be based on the amount of time required to complete the operation.

The average patient of a man whose practice is among the better class, wants good work done, and if the situation is explained to them it will not be difficult to obtain adequate fees. When a man knows that he is being well paid, it is only natural that he will take pains with his work, because he can afford to.

If the operation is along the lines of bridge-work, for example, he should proceed carefully in the preparation of his abutments for the reception of the caps, or crowns, as the case may be, step by step until the bridge is completed and put in such a way that there can be no injury to the tissues of the mouth. In many cases in injuries due to badly fitting caps, bridges and regulating appliances, protruding, and poorly finished fillings, the too violent separating of teeth, etc., etc., are limited to the extent of chronic inflammation of the gingivae and surrounding tissues, but every once in a while we find that the injury is more serious, and a malignant condition is set up, which may compel a major operation involving the loss of teeth and much bone tissue to effect a cure, if a cure is possible.

As the essayist says, there are innumerable operations, which are a menace to the tissues of the mouth, I would go farther, and say, that almost every operation which we are called upon to perform, if not done carefully is likely to cause injury.

I am pleased to see the emphasis made in regard to diagnosis. I cannot gather the Essayist's meaning, when he makes the statement, "Are people safer in the hands of an all round, very intelligent dentist, than in the hands of a specialist," to which he answers, "Yes!" "For the reason that the specialist's judgment is often warped in favor of his own specialty." In the first place, I would always take it for granted that a patient had already been in the hands of an all round dentist, before being handed over to the specialist; and secondly, once being placed in the hands of a specialist, the latter does what in his judgment is the right thing. I think the only way out of the difficulty is for us all to be all round intelligent dentists, and when we find work that the specialist should do, let him do it and see that he is a man who *can* do it.

This, Mr. Chairman, is all I have to say. I have brought in the subject of fees with my discussion.

BY DR. CHAS. E. PEARSON, TORONTO, CANADA.

Let me preface my discussion of the essay with this statement, that from over ten years careful study of the hard and soft tissues,

I am convinced that not 5 per cent. of the cases of pyorrhea, caries or necrosis of the bone are due to, and can be traced to faulty dental operations. I am firmly of the opinion that negligence and the various predisposing influences play a greater part in the development of such conditions, than poor dentistry. I just mention this in case some of you are feeling like joining the ranks of the real estate brokers, or go out to have a horn or two.

Apart from this, I will admit that the picture of dire disaster which our essayist has so ably painted for us, opens a field for profitable discussion. The essay is admirable, inasmuch as it does not pretend to deal with the accidents which may befall the practitioner, but rather with unfortunate conditions directly following a deliberate act; which act was the result of bad judgment.

For instance, a young man aged 25 years, presented himself. On the lower left side the first and second molars had been lost. The remaining teeth were in good average condition. A bridge was decided upon from the lower left second bicuspid filling in the distal surface which was removed in preparation for an inlay with a post for an abutement. The pulp was not exposed but was devitalized with arsenic. By accident the patient did not return for six days, when the tooth was very sore to pressure and particularly sensitive to heat and cold. The pulp was removed, using ethel-chloride, and a treatment of carbolic acid, sealed in for two days, it was then followed by oil of cloves. The tooth was sore and very loose. In about three weeks time, the soreness left it sufficiently to finish the preparation for inlay. A bridge was made and put in temporarily as a stay to the tooth, which is still very loose and slightly sensitive to pressure after two months. Apex large, subsequent an extraction of roots on other side of mouth showed abnormally large apical foramina.

To my way of thinking, this is a splendid case in point. Even though the apical feramen were normal, leaving no unforeseen danger to arsenical poisoning, there was no necessity for the removal of the pulp, as a simple inlay with a groove into which rests an uncemented bar from the bridge, is sufficient to sustain the strain required in mastication.

That second bicuspid will never regain its normal masticating power while the bridge adds twice or more than twice the function of it. Why take such chances?

I have made it a rule never to devitalize for a bridge abutment, unless the crown portion of the tooth is weak and the pulp canal is required for the purpose of holding a post to supplement the strength of the dentine remaining in the crown portion of that tooth. Of course, it goes without saying! This only applies in cases of healthy pulp. By following this rule there is less liability to perform dental operations, which are a menace to the hard and soft tissues.

Another condition I wish to touch upon is what I would call the lazy dentist's habit, or better still the "phosphate habit of the putty dentist." It's easy, it's cheap, and it's filling. You may putty with percha, you may putty with amalgam, you may putty with gold, but the worst putty of all, is cement. For getting out of trouble yourself, and getting the patient in, it beats anything in the dental pharmacopeia.

How many times have each of you had patients come from Dr. So and So, with a long story of faithful attention to the teeth, with years of inflamed gums, foul breath, and great discomfort. On examination, what is found? Putty and glue and slime. No cusps, no contours, no contacts. Gums hypertrophied, process absorbed, pus pockets, indigestion, and "visited my dentist every three months." The fact that cement dissolves away more readily, below the gum margin, makes it a menace to the hard and soft tissues. It sometimes takes years to put such cases right, and bring about a comfortable "*Hutax*" condition. The only remedy is hard work, well contoured inlays, good, honest, hard, well polished amalgam and sane prophylactic treatment.

One other phase of the subject, I wish to mention, and then I have finished.

There is no more constant and degenerating influence affecting the gum tissue and the undulifying process, than the pressure of partial dentines and the imitation of food particles squeezing between the partial dentines and the rucks of teeth.

DR. WEBSTER: Dr. F. D. Price, of Toronto, is to continue the discussion by illustrations. He has illustrations of dentistry, which he would like to show you.

I might say the privileges of the floor are extended to everyone to enter into this discussion at the close of Dr. Price's illustrations.

DR. PRICE: Mr. President, and Gentlemen: It is my purpose to show you some illustrations of the damage done to hard tissues in the mouth, due to improper dental operations. I purpose, instead of making any remarks with reference to the excellent paper of Dr. Whitslar, to make a few remarks with reference to what is thrown upon the screen, and incidentally I shall refer to the paper.

DR. PRICE then showed quite a large number of lantern slides, and made explanations with regard to them.

DR. WEBSTER: The subject, gentlemen, is open for general discussion. Remarks will be limited to five minutes.

DR. C. A. MURRAY, (MONCTON, N.B.): I am particularly interested in Dr. Whitslar, if he will excuse me for being personal, because I am proud to say he is a graduate of my own class at College, and when his name appeared on the programme, I was very glad, I have been particularly interested in the diagnosis and the good judgment a dentist should use. I think it is

a good thing to diagnose your case thoroughly and then use your very best judgment in applying the remedy. One of the most successful physicians is one that can diagnose his case, and after that is done, then apply the remedy.

Another thing, which has been a great menace to the hard and soft tissues of the mouth, is ill-fitting gold crowns; in fitting the bands we have seen the results in the mouths of different patients. We have seen the results here on the screen, and have also heard it mentioned in the paper. Another thing, which I think all of you will agree with me, that has been a great menace to the tissues of the mouth, is the enlarging of the canal of a devitalized tooth, either for the filling of that canal or for the purpose of putting on a crown which requires a pin. How many times have we seen where the operator, through poor judgment, has punctured the sound part of that root and gone into the alveolar process? Time will not permit to go on and tell you the results that may arise from such an operation.

DR. GRIEVE: I have a few slides here, which I would like to show you. If I understood the essayist's paper correctly, he spoke of the fact that there were ~~some~~ instances in which it was permissible to extract the first molar. I should think, it is never permissible to extract a first molar. He brought out the point that diagnosis was the main factor. I would like to make a plea for the many teeth that are extracted. I have only a few slides, but I will show instances where some odd teeth have been extracted with the idea of correcting malocclusion, but it does not do it as a rule. If they go into the subject more thoroughly and study occlusion, they will find out in many of the cases where they seek to correct by extraction, that it is a rank failure. I have seen instances where a lateral has been extracted, and in some instances even a cuspid. It was almost a crime.

(A number of lantern slides were then shown by Dr. Grieve).

DR. MAGEE: I have made one or two memorandums as Dr. Whitslar was reading his paper, which I would like to make a few remarks upon. He spoke of separators injuring the tissues. There is a great deal of injury done by certain separators, but if any of the members here, have tried the Perry separator, and another one that has been designed on the same principle, I forget the name, they have solved a great many of the problems. I am only saying this now for those who would like to obviate the difficulties in connection with ordinary separators. The Perry 2 bar separator and the Universal Separator will separate with a modicum of injury and pain.

In looking at some of the slides where root canal fillings have been protruding through the sides of the root, it is a tender subject with me. Perhaps, a good many will remember some years ago I undertook a bet with our old friend McInnis, that I could successfully fill the canals of seven out of ten ordinary molars that

were found in practice, and the results were to be sent to Dr. Price of Cleveland. The teeth were handed me in plaster by some members of the Profession, and I filled the canals of those teeth and sent them to Dr. Price, of Cleveland. He made skiagraphs of them, and they were published in our Dominion Dental Journal. I lost the bet, but our worthy friend, Dr. Ottolinguì, and our exceedingly worthy President, both paid me a very high compliment. I want to say this, in justice to myself, that the roots were exceedingly well filled. I knew I had made a failure of three roots, I had gone through the sides of them, but I felt the conditions were hardly fair, and yet I took all the chances, and anyone who has seen the doctor who made the effort to fill those canals, and, who thought he was doing faithful service; he was doing it according to his best judgment, but he made a failure. I venture to say if those teeth were opened and examined you would find a great many of them were properly filled, so don't think that mine was a botch.

In commenting, during the giving of the slides on Dr. Broomell's paper, I can hardly agree with him. I read it very carefully. I don't want to say a lot of the material in it I considered bunkum, but, with all due deference to his reputation, I cannot agree with him in one of the deductions he makes. A man will readily hunt up material which proves his case. I think, it is a very much better position for a man to take to hunt up material that will damage his case, and then prove his case by it; it is not well to throw aside the things that will disprove the case, and just present those things that will prove it. Dr. Broomell made the statement that pulps will die under a crown, and he says in his paper when you are going to adjust a crown for a bridge you should devitalize. I make it a point to save alive all pulps I can, whether it is to be used as the abutment for a bridge or to have a single crown, and I have been practising for a good many years and I yet have to have it proved to me, that I should devitalize the pulps of teeth to be crowned. If the pulp was intended to be dead, nature would have had it out of the way long ago. I think a tooth is very much better to be kept alive than to have it devitalized. If you are very sure you can fill that root to the end, there might be some justification for it, but no man in the world can say he can get that tooth filled to the end of the root; there may be pulp stones in it, pulp nodules. I think no man can properly claim those pulp stones are caused by irritation, resulting from caries. I have examined a great many teeth that never had a particle of caries, and I found a good many pulp stones in them.

Another remark Dr. Whitslar made was with reference to calculi; he said, it came from very minute particles to lumps the size of a hen's egg. There is only one picture of a mouth that I ever saw that could hold a hen's egg or a piece of calculi the size of a hen's egg.

In the discussion, and while it didn't come properly in the field, Dr. Pearson spoke about cement and puttying and that kind of thing, and he made the remark that the cement is always below the gum line. Properly manipulated, cement put in where I consider the gum line is will not dissolve out. It will dissolve out at the gum line, but not below it.

Dr. Morrison, in his remarks, claimed that amalgam fillings should be finished at a subsequent sitting. Now, my practice is always to finish and polish the filling at one sitting. I think, the amalgam filling should not be touched below the gingival border after you have taken the rubber dam off. No cavity which projects beyond the gum border should be filled without a matrix, especially a proximal cavity, but when you finish it, you want to finish it at the one sitting. All these fillings should be made with quick setting amalgam, and there is no reason why additional time should be taken up at a subsequent sitting, for the finishing and polishing of a filling, that can more easily be done at the time of insertion. More than that, I have yet to see the nice results that will be obtained from polishing the filling afterwards, that can be obtained from polishing it at one sitting. There is a brightness that is got there, and there is a blackness which will always follow that, which will not be found if the filling is properly polished at the time it is inserted. If it is polished at the time of insertion there is a greyness that never leaves it, and it never gets quite so black as the one polished at a subsequent sitting.

DR. WHITSLAR: Mr. President, Ladies and Gentlemen: My paper has done just exactly what I wanted it to do, call forth a general discussion. If I had started out and pursued any line of thought, you would have thought that I was a specialist, and if I had pursued that hobby to its end, we would not have had the good discussion that has followed, and therefore I feel very thankful that I took the course I did in making a general paper of it. I agree with Dr. Morrison, that a good amalgam filling is one of the best fillings that can be made, and I will say to Dr. Pearson that a good cement filling, is better than a poor amalgam filling, and a good amalgam filling is better than a poor gold filling, or any inlaid filling. The great trouble now, as puttyists in our work today is, I fear, in making up such cement fillings that some of us are going to allow these fillings to take the place of permanent fillings. We must treat them as temporary affairs, and talk of them as such to our patients, otherwise we will have conditions that obtain such as spoken of by Dr. Pearson. I imagine the persons he referred to as doing slovenly work are those who are slovenly in other ways, and who depend, perhaps, upon their good looks and pleasant manners in holding their clientele, which is not altogether a desirable factor in a professional career. A man should have a good personal appearance, and good manners, but he should substantiate them with good work.

I think, there is a great deal in what Dr. Magee and also Dr. Pearson says: I preserve the dental pulps in most of my teeth, where I put on a crown or bridge, if they are in a healthy condition at the time. Dr. Broomell evidently seems to think that in the end the pulp will die, dry gangrene will set in, and possibly later on moisture creep in and produce conditions which will produce an abscess; but I would often rather take my chances of that, and preserve the vitality of the pulp, because if we have that pulp in a good healthy condition, then we are more sure of the peridental membrane being healthy.

I knew that Dr. Grieve would at once take issue with me in regard to the extraction of the first permanent molar. I said in my paper, very rarely it should be extracted. Recently I had a case of a young girl, ten and a half years of age, whose second molars had not erupted. I found the first permanent molars very badly broken down, some of them below the gingival line. My judgment was to extract those molars and take my chances on the second molar coming into its place, and the third molar doing so normally. I referred the case to an orthodontia specialist, and he said not to extract those, but to fill and preserve the teeth. I followed the advice of the specialist, and I followed just what I have advocated in my paper, and if I am not sure of the condition myself, I go to one whose advice is superior to mine in his branch of work. The difference between a specialist in dentistry and a specialist in medicine is quite considerable. We are working upon tissues which are not repaired; our work is largely mechanical; we are not dependent upon systemic conditions away back of us, the action of the heart and of the liver, and of the kidneys, and all those conditions; in medical science a specialist is qualified more in that line of work than a dentist would be in dental treatment. So, with regard to Dr. Morrison's reference to my statement in that regard, all I can say is, that he said it in a different way to what I said it; we both had the same opinion, but stated it in a different way.

Dr. Murray struck the key-note, in my belief, in regard to my paper, that diagnosis is the principal point to be emphasized in the paper. I laid a great deal of stress upon that. If our diagnosis is correct our opportunities for doing good are greater, and our judgment is better.

ADDRESS AND CLINIC ON MINERAL STAINS

DR. F. E. ROACH, OF CHICAGO.

Delivered before the Dental Society of Western Canada at Winnipeg, April 18 and 19, 1910

Mr. President, Members of the Society, Ladies and Gentlemen: Before entering into this part of our work, that is, the clinic upon

the use of mineral stains, probably it would be well for me to explain to you in a few words the object and the purposes of these stains. It is necessary in a great many instances that we have some means of changing the colors of the teeth that we are going to use, either in individual crowns, bridge work or full sets of teeth, partial sets of teeth or in whatever way we have occasion to use them. We so frequently find cases where it is impossible for us to select teeth from the best stocks of teeth available, to get teeth that will harmonize with the teeth in certain cases. We have had furnished to us by the S. S. White Co., the Brewster Manufacturing Co., Cladius Ash and others mineral stains for this purpose and they have served a very good purpose in a measure. I had used these paints (they are practically nothing more than china paints), and they served a good purpose for a great many years but the difficulty of their application made them rather unwieldy, rather unsatisfactory, and it required a good deal of patience and time and perseverance to master the technique of their use and even then it was quite impossible to get that particular thing that we so often want, of changing the color, changing the blend, changing the tint of a tooth without giving it a blotchy or a mottled effect with an unfinished appearance which it was impossible to overcome with the preparations that have been furnished us by the manufacturers.

As I say, to me it was necessary in my experience, in many instances simply to change the blend of the coloring without giving to the tooth that freakish appearance that it was necessary to give by the use of the preparations that were furnished by the manufacturers. Apparently the primary purpose that seemed to be aimed at by the manufacturers was to produce the freakish conditions, such as the abraded tobacco stained tooth, the Hutchison tooth, any pronounced discolorations, and for that purpose these stains furnished by the manufacturers served admirably and as well as anything I know of, but in my experience I found so often that I was unable to select teeth with that peculiarity of coloring that we so often find. It was impossible to find, and select teeth from the stocks available to suit the case. I believe that we are practising dentistry in an age of a higher degree of art than has ever existed. I believe that our people are demanding a higher degree of artistic skill. We are no longer looked upon as mechanics, we are looked upon as all round men in our work, that is, doing not only the mechanical work, but we are following out various lines that make for the betterment of our people, in the artistic part, I think it is our duty in the placement of artificial teeth to use every means in porcelain, the porcelain inlay, the crown, or the partial denture, or the full denture, to put into our work the highest possible degree of art.

Now in the artistic arrangement of our sets of teeth, observing the law of harmony and correspondence and the setting up

of those teeth with reference to this law, with reference to the temperament of the individual, the physiognomy, the facial contour, and the complexion, all these things are governing factors that will aid us in carrying out the artistic side of our work, but if we have no simple means of changing the colors of our sets of teeth, or of our individual crowns we are handicapped in carrying out this higher degree of art that is so essential to a high-class practice, and I take it that we are all endeavoring to do the very highest class of practice, so that for that reason in my experience with these stains that were furnished us I found a deficiency in their use. They were difficult of use, and for that reason I began experimenting with the various china paints that were manufactured for the china painters, and I experimented with a great number of them. Finally, I hit upon the mineral stains, the colors manufactured by the Lennox people, of Newark, N.J., for Belique, a manufacturer of high grade chinaware, and I found by the use of these the ideal material for this purpose and it is my object at this time to bring to your attention the use, the simplicity of the application and, if possible to interest you in the merits and usefulness of these materials for the purposes that I speak of.

Before I attempt to show you by the practical application of them I will pass around these models which will give you some idea. Of course, the models are self-explanatory, but a few words of explanation may be necessary or advisable. The point I wish to make, is, that in the use of these stains with about six colors you will be able to make all of the colors on the shade guide. Take the S. S. White shade guide, for instance, as a standard. It is possible even with these six colors to change from, we will say, one or two colors or at least three colors. For illustration we will take Shade 26, as the lightest color. We will take then as another illustration, Shade 35 as a creamy tooth. Now you may take these two colors and with the six colors of the mineral stains I believe I can show any individual in the room in a few minutes' time how he can take these six colors and produce any shade on the shade guide in five minutes' time from these two colors selected from the shade guide.

I think it will be at once apparent to any of you, the advantage of such a material, because so many of us are located remote from a large stock of teeth, and a means whereby we are placed in a position of independence of a great selection of teeth.

Perhaps you are going to place a crown, and you may have a tooth that suits the requirements in every respect, with the exception of the color. I dare say every one of you have often made crowns, made bridges, made inlays and has wished that he was able to change the color a little..

We should be more critical at all times than our patients. We should be hypercritical ourselves. We should first educate

ourselves up to that degree of perception of the requirements so that we should not leave it to our patients to criticise, but I dare say every one of you has had the experience of a feeling of dissatisfaction with some piece of work and only wished that you could change the color a little. There was something in the color, and there is nothing in our work that reflects the artificiality of it more than a lack of harmony in the color. There is nothing in our crowns, nothing our partial sets, more especially in these partial sets, that is a surer indication of the false work, that is, the artificiality of it, there is nothing that is more of a give-away, if you will allow the expression, than the color of it, and I am sure that every one of you realizes that. It is nothing more than china paint. There is nothing that I could bring to you that would be more valuable to you, that you can take home and put into practice, to a better advantage than to have you understand the use of these mineral stains. Those of you who have had any experience with the various stains that have been furnished us, if you will try these Lennox stains you will find they are so much superior in every respect, that you will be pleased.

Another very important feature in connection with these mineral stains, is the fact that the pigment in them is so fine that there is apparently no grit in it at all, you can spread it all over the surface of a tooth. Now, in the use of the other mineral stains that we have had, it is quite impossible to do this. You take the S. S. White mineral stains, for instance, which, as I say, are intended mostly for these freakish conditions, it is almost impossible to spread that over the surface of a tooth so that it will not be blotchy. To do it at all reasonably, satisfactorily, it is necessary to grind off the glazed surface of the tooth, but with these materials you do not have to do that at all. It is preferable not to grind the glaze off the tooth at all, and you can spread them on in such an infinitesimal amount that you can change a tooth the slightest amount in color without any perceptible change after it is baked. When they are placed upon the teeth in a green state before they are baked you will have a definite guide, as to what you will have when they are baked, making a very desirable feature in that you may spread the paint over the surface, and if you have the patient in the chair you can try it alongside of the teeth that you are matching, and see that you have the coloring right. The only variation from the color that you will have in the stain as placed upon the tooth in its moist condition, is that in baking they will bleach out slightly during baking, so that you have to figure on making them a little darker when you are painting them on, than you want the finished product to be.

A man in the outlying districts must of necessity depend on carrying a stock of teeth for his practice. He cannot wait to send to the supply houses, miles and hundreds of miles away in many instances for his teeth. It is impossible for us to carry a

stock of teeth that will meet all the requirements, and I want to say to you gentlemen, those of you who are so situated, that this is the most valuable thing that you can possibly take away from the meeting, not throwing any bouquets at myself, or wanting to compliment my clinic, but I want to say to you honestly that it is the most valuable thing you can acquire in your practice, and I am sure you will appreciate it.

In the setting up of artificial sets of teeth, as I have said, there is nothing that will put into our work a higher degree of character, of individuality, than the breaking up of the variation of the color of the sets of teeth. Nature doesn't build her sets of teeth all one color. That has been very conclusively proven and brought out to us and introduced to us first, I believe, by Dr. Royce, of Chicago, and I am sure you are all familiar with Dr. Royce's tabulated arrangement of the colors. Cuspid teeth we find are always darker, and then grading down either way from the cuspid teeth in a lighter color. It is that breaking up of the monotony of our sets of teeth that adds so much to the artistic and natural appearance of the teeth. Never do I put in a set of teeth that I do not use these stains. You can stain a set of teeth in ten minutes' time, and you can do it quicker than you can go into the best stock of teeth and make a selection, and when you get it done there is something added to the tooth that you cannot get in the shop tooth. You have got some character in it, some individuality in it; there is the artistic side of it that you cannot buy from the shop. It is just like the handwork that is put into anything that is handwork; it is a superior quality over the shop work.

In my use of these things then, in connection with full sets of teeth, I almost invariably find that by painting the cuspid teeth a yellow, or brown, usually a yellow, intensifying the yellow in the cuspid teeth, and then using a little gray on the lateral incisors and bicuspid, good results are obtained. If you will only just take your neighbors, among yourselves, and examine your teeth, you will find that that rule will predominate. If you will follow then that rule in the arrangement of your sets of teeth you will find it will help a great deal, making the cuspids a yellow, and the laterals a grayish effect, and the bicuspid, and then the incisors can be left a little lighter,

Then in the use of these stains the Art Supply Houses have furnished a preparation known as Clove Oil; they furnish this for the purpose of mixing these stains. It works very nicely, though glycerine may be used equally advantageously, and owing to the fact that you can get glycerine in any drug store, you will find it just as well to use it.

These mineral stains that I am showing you may be obtained from the Art stores; almost any good Art store can furnish you with these mineral stains. The Lennox Hard Fire Colors for Belique is the name of them. The colors that I find have filled

the requirements in almost all cases—of course, there are exceptional cases where I have had to use one other color—but in my experience, now, of about two years in their use I find that these six colors will be about all you need: Ochre yellow, blue black, deep sea green, Assyrian blue, white, and Venetian red. Those six colors will be all the colors you will have any occasion to use. In using them they should be spatulated and used with glycerine. You will use alcohol for cleaning your brush and for cleaning the surface of the teeth where you want to use them. Of course, in the use of the oils it will be necessary to use the turpentine preparation for cleaning the brush.

Unfortunately these colors are not made for our specific use; they are made of china painters. In 95% of the cases that you will have occasion to use a color, you will have to use a combination. There is not a color made that I have been able to find that is suitable, that is that peculiar greenish yellow cast that we want in our staining of teeth so that a combination, a mixture of the ochre yellow and the blue black, gives us this very desirable color. We use the ochre yellow with a very small amount of blue black in it, which will give us a greenish yellow for this purpose and then where we want to get a grayish effect we use the blue black alone.

We can change with one or two colors of these six, to any color in the shade guide. For instance, we may take shade 35 of the S. S. White shade guide, which is a light creamy yellow tooth, and we can easily produce shades 36, 37, 39, 41, 42 and 43 with this combination of ochre yellow and blue black. We can easily produce those colors from 35. Now to produce shades 38 and 40, we would have to add or we might have to make two coats, but we would have to add a little more of the blue black, a little more of grey in these two colors. For shades 44, 45, and 46, those being the three colors that have a greenish cast on the shade guide, it will be necessary to use a slight tint, or slight layer of deep sea green. That will be the color that will be needed for those four colors. When we get up to 47, 48, 49, and 50, those very dark colors, usually we have to make two coats in order to produce this very pronounced dark color from a very light tooth such as 35 would be. Put on your coat of ochre, darken it up with grey and then an overcoat of the greyish yellow. You may think at first thought that this would be difficult, that you would not want to be bothered with making these colors, from teeth that you might select, when as a matter of fact you will find it so much easier. I have two of the largest stocks of teeth in the country, right at my door, right across the street, one of them in the same building, and the S. S. White Company being right across the street from me and rather than attempt to go to that stock of teeth and select a tooth suitable for the case I will invariably take a tooth a little lighter than I want, and stain it to the color I want, and

when I have it finished it is better, it has a more natural appearance than I could select from the stock of teeth, because the trouble with the teeth, as we get them from the manufacturers, especially in our partial sets, is that they have a shop-like appearance at best. There is that uniformity, that stereotyped plan of colors that will not harmonize with the great majority of teeth that we are matching, so for that reason you have the advantage of producing what you want, in less time and with far better results by making the color that you want from the teeth that you may have on hand. If I haven't a tooth on hand, I simply send my assistant out—I do not make any attempt to select what I want, because, naturally when we get into this work, we get a little cranky about these things, we get so we are not satisfied, and I have gotten that way so that rarely ever do I put in an inlay, crown, bridge or any kind of porcelain that I do not tint it; I find that I am not satisfied with it as it comes from the shop; I want to put a little individuality into it, that I cannot get from the dealer, and for that reason you will find it so simple that you will grow into it and you will be surprised how easily the thing can be accomplished.

I have some models in this box and those of you that may be interested in it can spend a little time in looking at, and studying these models. I should like you to get where you can get a good light on them, and study them critically, and I think you will readily see the nicety with which they can be placed, and how invisible the stains themselves are. I should like you to pay special attention to these models of crowns. It seems to me that we lack more in our crown work, and there is a greater necessity for something of this kind in our crown work. Because of the surrounding conditions; so many teeth have a streaky and a mottled effect and if we select a tooth regardless of how well it matches in color it lacks that harmony, because of the stereotyped blend of colors that we are compelled to use. Each one of these shows a tooth unstained, and then one that is stained, so that by examining those carefully you will be able to see the possibilities of the use of it.

Now, I think, that possibly unless there are some questions that may occur to you, I will proceed to give you the practical demonstration of the application of these stains on some teeth that I have. I want you to feel perfectly free to ask me questions, and if I can answer them I will endeavor to do so, and if I cannot, I will say so.

DR. BUSH: May I ask what heat you use to bake them?

DR. ROACH: Most of the stains can be fused very nicely at about 1500 degrees Fahrenheit, so that I would say that on an average 1800 degrees will be a very satisfactory heat to bake them. Some of them the colors are disintegrated very much lower than others, but the colors we use, the ochre yellow and the blue black, the color that is most universal, you will find will stand

very nicely up to 2000 degrees Fahrenheit, so that you can use very satisfactorily the pure gold dust. I use this very frequently in continuous gum work, put on the colors and fire during the last bake; bake them in gum enamel, which is about 2100. Of course, they bleach out, and I calculate to stain quite a bit darker than I expect to obtain the finished result, but you can get very satisfactory results at from 1500 to 2000 degrees Fahrenheit. I use it for my porcelain inlay. Use high fusing porcelain, either Brewster's or White's porcelain, fusing about pure gold, that is, about 2000. After you have made your inlay and stripped the matrix, by placing the inlay in the cavity with your silex moistened with water, you can determine definitely what the requirements are. Another nice feature in connection with the use of these things in your inlay work is that the results are better; there is less trouble from the shadow problem in the use of this superficial staining than if we attempted to put the stain within the material.

As will be shown in one of the models there, I show one block stained, changing from 37 to 36 by an over-coat of the White enamel, but you will not be able to vary the color to the extent that you will in darkening. Of course, there is no limit to what you can do in the way of darkening the color, but there is a limitation upon making the change from a very dark tooth to a very light tooth, because, if you use sufficient of the white enamel to produce the color you want, you will have rather a glassy looking effect. It doesn't, so far as my experience has gone, work out very satisfactorily when you attempt to shade more than two or three shades lighter than the color that you have.

DR. GARVIN: Do these colors ever wear off?

DR. ROACH: That is another very germane question. In answer to that question I will say, that I have not any fears at all. After about two years' use of them, I have had no occasion at all to notice any discoloration, any change of color from any chemical action or any disintegration from abrasion in the mouth, and my clinical observation has been substantiated by laboratory tests in the various acids. I have used the brush wheel with pumice applied to them in order to polish them away and I am fully satisfied that they are perfectly reliable in this respect. They become fused and united. They are flux coloring matter and this fuses and becomes an integral part of the surface glaze on the tooth, so that it is not a superficial deposit, but there is an actual union of the material and the surface of the tooth.

The question was asked by one of the members: "Can these stains be fused on in any way except the porcelain furnace?"

DR. ROACH: They may be fused very nicely, that is, fairly satisfactorily, by placing the tooth or teeth that you are going to stain in a bed of silex in a pan, and then covering the tooth with a little nickel or platinum muffle, and if you have a good

strong, efficient blow-pipe you can fuse them very nicely without a furnace, but the reliability of this method, of course, is not comparable to the furnace in baking.

DR. GARVIN: How long should you allow for the furnace to work up to 1800 degrees and how long should it be kept at that point before allowing to cool down so as to make sure that these stains are properly fused?

DR. ROACH: The question of time required to bring the heat up to the vitrifying temperature will just depend upon how much risk you want to take in cracking the porcelain. The paints themselves may be put right in a hot furnace and the oil of glycerine will burn out and leave them intact without any tendency to blister or flake off, so that no time may be lost in drying up. It is simply a question of how suddenly you may apply heat to the porcelain without injury to the porcelain so that the injury that would occur in sudden heating or sudden cooling would be to the porcelain, rather than to the color.

DR. GARVIN: Once it reaches 1800 it would only have to stay there a moment? It wouldn't need to be there for any length of time?

DR. ROACH: No, it is simply a question of carrying the heat up to that point. If you have reached that degree of heat, that is all that is necessary; you will cease baking at once and I do not hesitate to take a tooth out of the furnace immediately when it is red-hot. It has been conclusively and scientifically proven by Dr. Greaves, of Baltimore, that the injury to porcelain in all its uses, the liability to fracture, is due to the sudden application of heat rather than the sudden removal of heat from the porcelain, so that care should be exercised more in the heating of the porcelain than in the cooling of the porcelain. Of course, in a sub-chamber it would be folly to take a piece of porcelain out and throw it into a vessel of cold water, but I have never found any injury come from the removal of the porcelain from a red-hot furnace, taking it out and subjecting it to the temperature of the ordinary room. Of course, it is also a well known fact that all porcelain is susceptible of being tempered the same as metals, so that if you expect to have the greatest possible strength in your porcelain, it is better to cool it down in the furnace, but ordinarily with our sets of teeth, and our crowns, any injury that might be due to sudden removal from the furnace or sudden cooling, such as would occur from taking out of the furnace into the temperature of the ordinary room, I consider would be of practically no consequence.

Q. Can you use it just the same on low fusing porcelain as high fusing porcelain?

DR. ROACH: I should say that in porcelain, that fuses as low as 1500 degrees of Fahrenheit, the use of these stains would be a questionable procedure, because I find that they do not properly

fuse much under 1500 degrees, and it would be a rather risky procedure to attempt to fuse these on what we call the low fusing porcelains, those fusing along about 1500 degrees.

Q. Can the gold be burned on to porcelain to remain permanently?

DR. ROACH: I have never seen that successfully accomplished. I know it has been recommended and has been done. I have experimented with it. The application of gold paints to represent gold fillings has been used, but the fact is, that when we place these gold paints on they do not form an integral union with the porcelain such as these mineral stains do, and they become worn off. I have seen a great deal of this work, and if we are going to put these on it is usually for the deception that we purpose to make in substituting for the gold filling, and I find that they do not look very much like a good filling after a few years' time. They get scratchy and worn away, and I have seen them wear off entirely, so I do not believe that procedure is very satisfactory—the use of china paints for painting on as a substitute for gold filling.

Q. In applying the color, is it necessary to take precautions as to the amount put on?

DR. ROACH: Well, of course, the color that you will get will be dependent upon the thickness of the layer. The effect that you will get in the finished product will depend upon two things, or we might say three factors, that is, upon the color of the pigment you are using, upon the thickness of the layer you use and upon the underlying color. It will depend upon the color of the teeth you are staining, upon the thickness of the layer you place upon it and upon the color of the pigment you are using; those are the three governing factors in the finished result. Now it would be quite unreasonable to expect that we could take, for instance, shade 30, which is a dark grey, dark bluish grey, and produce shade 35 or 38, a creamy yellow tooth from that without resorting to the extremes of coloring pigment and the thickness of the layer.

In answer to that question we will say, for illustration, that I have a shade 35. I will use that in my clinic, in the practical demonstration of the application of them which will be very clearly brought to your notice, but, so that you may all get the benefit of it; if I want to change from shade 35 (I take it that you are all familiar with the S. S. White shade guide and know what shade 35 is; it is a light, creamy yellow), and I wanted to make say, shade 39 out of that, which is about four or five shades darker of the same identical color, I would simply take this ochre yellow and blue black, which would give me a greenish yellow cast, and I would add just a thin layer of that on there. If I wanted to produce shade 36, for instance, out of shade 35, I would put on the thinnest possible amount, the amount that would give me just one shade darker of the same color. Ochre

yellow and the blue black combined give to us that peculiar greenish yellow cast that we get in shades 35, 39, 41, 42, and 43. Those are all variations of the one color. The color pigments in those different numbers are identical excepting that they vary in intensity, so that if I wanted to produce from shade 35, shade 43, for instance, which is the darkest of that particular color, I would simply produce that by thickening the layer.

Q. Can you get sufficient heat with the gasoline blow-pipe?

DR. ROACH: I do not know; I haven't tried it, but I should think so.

Now, another question that has often been asked me in connection with the use of these materials is as to whether they may be used on teeth that have been soldered, for instance, in a crown or bridge where you have soldered the teeth on, whether we would be able to paint these stains on and then fire after the soldering has been done. I do not consider that practicable, although I have had some men tell me that they have succeeded very nicely in doing that, by investing the case in investment material that we use for casting purposes and painting on, leaving the surface of the tooth exposed, that is to be stained, and in that way they have accomplished very satisfactory results but I have not tried it. I haven't experimented with it myself, because in my experience in dentistry I never unite the porcelain and the gold together in the fire. I cement them together. I have reasons to believe that that is decidedly the better way to do it, so that by leaving my fastenings detachable, I have the opportunity of trying the case in the mouth and if it is not right, then there is nothing to interfere with staining the tooth and making it just the color I want, and I find it is a very great advantage in my crown and bridge work in this respect, to make them detachable, as well as the other advantages, which I am sure all of you are familiar with.

Then the question has been asked too, as to whether it would be feasible to stain these teeth and then subject them to the fire in soldering; whether the investment and the subsequent firing would be injurious to the stains. That, I will say, is successfully done. There is no objection and no trouble in that respect, so that that need not deter you from using them in any case that you are subsequently to solder.

DR. CLINT: Would you not lose color in soldering?

DR. ROACH: No, the heat incident to soldering would not be sufficient to modify the color unless you were to carry it very considerably beyond the fusing point of the solder, 18 or 20 karat solder.

DR. CLINT: Have you used these stains in connection with Ash's teeth to any extent?

DR. ROACH: No, I have not, but there is no reason that I see, why they should not be used.

DR. CLINT: They are low fusing; they lose color in soldering.

DR. ROACH: Yes. I do not know just the fusing temperature of Ash's teeth, but at the same time it seems to me it would be sufficiently high for that, because I think, we often carry our cases up even hotter than is really necessary.

Dr. Roach then proceeded to give a practical demonstration of the use of the mineral stains.

DENTISTS IN ATTENDANCE AT THE CANADIAN AND ONTARIO DENTAL ASSOCIATIONS

May 31st, June 1, 2 and 3

Eudore Dubeau, Montreal, Que.; D. N. Stewart, Hamilton, Ont.; W. C. Wickett, North Bay, Ont.; J. S. Bagnall, Charlottetown, P.E.I.; J. G. A. Gendreau, Montreal, Que.; N. A. Gumeary, Kincardine, Ont.; J. M. McCullough, Perth, Ont.; W. S. French, Amherstburg, Ont.; A. V. Summers, New Liskeard, Ont.; J. N. Dunning, Wallaceburg, Ont.; I. J. Wigle, Tottenham, Ont.; W. G. L. Spaulding, Toronto, Ont.; C. Harold Clarkson, Toronto, Ont.; Wallace Seecombe, Toronto, Ont.; F. A. Harwood, Montreal, Que.; E. L. Brereton, Barrie, Ont.; A. McElhinney, Ottawa, Ont.; Phillipe Hamil, Quebec, Que.; Arthur Langlois, Quebec, Que.; R. A. Woollett, Montreal, Que.; J. A. Bothwell, Stratford, Ont.; W. Revell, Windsor, Ont.; A. T. Morrow, Maxville, Ont.; G. E. Ritchie, Halifax, N.S.; A. G. Campbell, Wallaceburg, Ont.; S. J. Bloomfield, Sherbrooke, Que.; H. E. Morris, Picton, Ont.; J. A. Thompson, Havelock, Ont.; D. Baird, Uxbridge, Ont.; J. G. Roberts, Edmonton, Alta.; F. A. Stevenson, Montreal, Que.; J. D. Maher, St. John, N.B.; G. F. Roulston, Exeter, Ont.; G. K. Thomson, Halifax, N.S.; W. C. Oxener, Halifax, N.S.; C. F. Morrison, Montreal, Que.; D. J. Berwick, Montreal, Que.; H. B. Rickard, Port Colborne, Ont.; F. S. Loucks, Clarksburg, Ont.; W. R. Green, Ottawa, Ont.; W. A. Cewan, Toronto, Ont.; C. H. Juvet, Ottawa, Ont.; A. E. Webster, Toronto, Ont.; H. A. Clark, Brockville, Ont.; H. F. Whitaker, Edmonton, Alta.; F. W. Wright, New Glasgow, N.S.; A. V. Lester, Hamilton, Ont.; V. E. Hart, Lindsay, Ont.; G. W. Everett, Hamilton, Ont.; G. T. Ives, Lethbridge, Alta.; H. M. Sanderson, Toronto, Ont.; R. MacFarlane, Berlin, Ont.; W. C. Gowan, Peterboro', Ont.; F. C. Bennell, St. John, N.B.; C. A. Murray, Moncton, N.B.; J. A. C. Hoggan, Hamilton, Ont.; L. J. B. Fasken, Regina, Sask.; G. T. Marrs, Paisley, Ont.; C. S. McArthur, Truro, N.S.; A. J. McDonagh, Toronto, Ont.; F. E. Bennett, St. Thomas, Ont.; H. H. Way, St. Thomas, Ont.; C. S. McComb, Blind River, Ont.; E. M. Fulten, Hamilton, Ont.; A. H. Pratt, Kemptville, Ont.; S. E. Fester, Warton, Ont.; J. A. Butler, Cookshire, Que.; S. M. Thomas, London, Ont.; J. A. Fleming, Prescott, Ont.; G. H. McKeown, Winchester, Ont.; F. Hansel, Hamilton, Ont.; T. N. McGill, Toronto, Ont.; H. A. McKim, Cobourg, Ont.; R. M. Chambers,

Leamington, Ont.; G. F. Elliot, Petrolia, Ont.; H. R. Clark, New Market, Ont.; J. S. Somerville, Niagara Falls, Ont.; J. A. Shannon, Sault Ste. Marie, Ont.; S. M. Kennedy, London, Ont.; Ghent Wilson, Toronto, Ont.; A. W. Thornton, Toronto, Ont.; G. J. Gibb, Blenheim, Ont.; W. C. Trotter, Toronto, Ont.; B. W. Linscott, Brantford, Ont.; G. V. Allen, Mount Forest, Ont.; W. C. Pickering, Durham, Ont.; T. E. Ball, Harriston, Ont.; M. J. O'Callaghan, Prescott, Ont.; J. H. Irwin, Collongwood, Ont.; A. A. Smith, Cornwall, Ont.; G. F. Belden, Toronto, Ont.; F. C. Vanduzer, Toronto, Ont.; H. W. Reid, Toronto, Ont.; M. A. Day, Belleville, Ont.; G. W. Bald, Sault Ste. Marie, Ont.; W. M. Wunder, Toronto, Ont.; R. M. Armstrong, Oshawa, Ont.; W. H. Coon, Midland, Ont.; H. E. Eaton, Toronto, Ont.; H. O. Richardson, Campbellford, Ont.; M. A. R. Thomas, London, Ont.; H. G. Robb, Niagara Falls, Ont.; A. F. Dyer, Indian Head, Sask.; C. R. Campbell, Whitewood, Sask.; A. A. Babcock, Brantford, Ont.; G. E. Hill, Toronto, Ont.; E. W. Sisson, J. A. McArthur, Priceville, Ont.; J. E. Rhind, Toronto, Ont.; R. G. McLaughlin, Toronto, Ont.; A. J. Brown, Mitchell, Ont.; C. B. Dorland, Oakville, Ont.; J. J. Loftus, Toronto, Ont.; W. J. Garland, Cobourg, Ont.; H. Wightman, Peterboro', Ont.; D. W. Massey, Brighton, Ont.; S. L. Frawley, Toronto, Ont.; H. E. Beddingfield, High River, Alta.; W. Buchannan, St. Catharines, Ont.; Josephine Wells, Toronto, Ont.; H. L. Belcher, Seneca Falls, N.Y.; G. A. Bentley, London, Ont.; E. Hart, Brantford, Ont.; W. E. Willmott, Toronto, Ont.; J. B. Willmott, Toronto, Ont.; W. J. Woods, Toronto, Ont.; O. H. Peaker, Brampton, Ont.; W. A. Brownlee, Grimsby, Ont.; R. J. McGahey, Toronto, Ont.; M. H. Garvin, Winnipeg, Man.; H. W. Kalbfleisch, Elmira, Ont.; F. D. Price, Toronto, Ont.; Frank Woodbury, Halifax, N.S.; W. H. Bowles, Winnipeg, Man.; Miss M. A. Hanna, Kemptville, Ont.; A. J. Broughton, Toronto, Ont.; S. Eckel, Waterloo, Ont.; M. B. Mallory, Toronto, Ont.; W. A. Mathison, Port Rowan, Ont.; C. H. Waldron, Toronto, Ont.; J. S. Chambers, Toronto, Ont.; R. J. Vance, Waterdown, Ont.; E. A. Grant, Toronto, Ont.; P. Proudfoot, Russell, Ont.; W. T. Willard, Toronto, Ont.; H. N. Wilkinson, Newmarket, Ont.; F. N. Badgley, Toronto, Ont.; E. L. Gausby, Toronto, Ont.; M. R. Billings, Cayuga, Ont.; C. E. Brooks, Toronto, Ont.; G. W. Greive, Toronto, Ont.; T. A. Currie, Toronto, Ont.; O. A. Watson, Campbellford, Ont.; W. A. Black, Toronto, Ont.; W. L. Chalmers, Alexandria, Ont.; F. G. Henry, Delhi, Ont.; R. Meek, Orangeville, Ont.; C. E. Pearson, Toronto, Ont.; W. A. McLean, St. Catharines, Ont.; J. H. Simpson, Trenton, Ont.; J. Frank Adams, Toronto, Ont.; Harold Clark, Toronto, Ont.; J. G. Roberts, Brampton, Ont.; Arthur Day, Toronto, Ont.; Jas. M. Magee, St. John, N.B.; Jas. Bansley, Toronto, Ont.; W. T. Hayden, Goderich, Ont.; J. P. MacLachlan, Toronto, Ont.; J. A. Brett, Toronto, Ont.; H. A. Hoskin, Toronto, Ont.; W. T. Jeffs, Dresden, Ont.; G. S. Caesar, Toronto, Ont.; W. R.

Glover, Kingston, Ont.; H. R. Abbott, London, Ont.; J. S. Grant, Durham, Ont.; P. E. Clarkson, Toronto, Ont.; H. E. Klinger, Toronto, Ont.; F. R. Watson, Georgetown, Ont.; E. C. Jones, Toronto, Ont.; G. F. Bush, Winnipeg, Man.; A. H. Allen, Paisley, Ont.; J. A. Bothwell, Toronto, Ont.; F. R. Mallory, Toronto, Ont.; L. I. Mills, Southampton, Ont.; D. N. Ross, Winnipeg, Man.; H. A. Semple, Toronto, Ont.; A. W. McGregor, Arnprior, Ont.; S. C. Wilson, Perth, Ont.; Guy G. Hume, Toronto, Ont.; A. D. A. Mason, Toronto, Ont.; J. G. Adams, Toronto, Ont.; W. H. Whitslar, Cleveland, Ohio; J. W. Coram, Toronto, Ont.; E. Kelly, Hamilton, Ont.; Arthur Ellis, Toronto, Ont.; G. F. Gilroy, Toronto, Ont.; E. F. Ridsen, Toronto, Ont.; Wm. J. Lea, Vancouver, B.C.; H. S. Reynolds, Picton, Ont.; W. D. Cowan, Regina, Sask.; E. C. Murray, Flesherton, Ont.; C. E. Scott, Toronto, Ont.; W. E. Cummer, Toronto, Ont.; E. F. Arnold, Toronto, Ont.; W. C. Smith, Welland, Ont.; E. W. Hosinger, Barrie, Ont.; J. W. Armstrong, Toronto, Ont.; Jos. Nolin, Montreal, Que.; C. F. Walt, Sterling, Ont.; A. Beauchamp, Montreal, Que.; G. M. Trewin, Oshawa, Ont.; T. C. Trigger, St. Thomas, Ont.; C. H. Zeigler, London, Ont.; C. E. Sutton, Toronto, Ont.; A. R. Kinsman, Exeter, Ont.; G. W. Howden, Watford, Ont.; D. J. Brass, Hanley, Sask.; M. J. Clarke, Belleville, Ont.; J. L. Anderson, Waterford, Ont.; W. H. Doherty, Toronto, Ont.; Thomas Henderson, Toronto, Ont.; A. A. Smith, Toronto, Ont.; J. A. Slade, Toronto, Ont.; C. C. Nash, Kingston, Ont.; R. R. Ross, Seaforth, Ont.; W. J. Loftus, St. Catharines, Ont.; J. J. Kerr, Cobourg, Ont.; F. L. Follick, St. Mary's, Ont.; H. J. Kennedy, Ailsa Craig, Ont.; F. A. Sellary, Hensall, Ont.; C. O. Beam, St. Catharines, Ont.; F. Kilmer, St. Catharines, Ont.; Geo. Hicks, Watford, Ont.; R. M. Stewart, Markham, Ont.; F. W. Barbour, Fredericton, N.B.; J. W. Moore, St. Stephen, N.B.; R. T. Kenny, Toronto, Ont.; R. J. Husband, Hamilton, Ont.; E. A. Peaker, Toronto, Ont.; W. S. Westland, London, Ont.; A. W. Winnett, Kingston, Ont.; D. M. Mitchell, Fort William, Ont.; W. R. Marshall, Toronto, Ont.; E. C. Veitch, Toronto, Ont.; W. B. T. Amy, Toronto, Ont.; J. E. Black, Toronto, Ont.; W. D. Staples, Hanover, Ont.; A. H. Mabce, Gananoque, Ont.; F. J. Capen, Toronto, Ont.; W. A. Armstrong, Ottawa, Ont.; F. Frank, Orangeville, Ont.; R. A. Willmott, Strathroy, Ont.; F. C. Becker, Toronto, Ont.; L. Gerald Smith, Toronto, Ont.; T. W. Halloway, Peterboro', Ont.; Carl E. Klotz, St. Catharines, Ont.; J. F. O'Flynn, St. Catharines, Ont.; J. J. Brown, Woodstock, Ont.; T. F. Perkins, Grand Valley, Ont.; L. E. Stanley, Ottawa, Ont.; T. F. Campbell, Galt, Ont.; A. E. Santo, London, Ont.; O. A. Marshall, Belleville, Ont.; H. J. M. Bannerman, Owen Sound, Ont.; J. H. Locheed, Hamilton, Ont.; A. C. Burnett, Hamilton, Ont.; H. M. Morrow, Hamilton, Ont.; M. P. Corrigan, Strathroy, Ont.; A. Shaver, Brockville, Ont.; H. W. Brace, Brockville, Ont.; J. C. Devitt, Bowmanville, Ont.; C. N. Simpson, Port Arthur, Ont.; W. A. Sang-

ster, Port Perry, Ont.; B. E. Brownlee, Mount Forest, Ont.; G. T. Kennedy, St. Thomas, Ont.; W. C. Davey, Morrisburg, Ont.; W. A. Fleming, Alliston, Ont.; F. A. French, Renfrew, Ont.; D. D. Smith, Philadelphia, Pa.; R. G. McLean, Toronto, Ont.; C. A. Terry, Huntsville, Ont.; L. N. Lemieux, Quebec, Qué.; T. W. Caldwell, Yorkton, Sask.; W. J. Norris, Brantford, Ont.; A. Jemison, Millbrook, Ont.; J. S. Somers, Toronto, Ont.; F. J. Stowe, Toronto, Ont.; C. V. Wallace, Toronto, Ont.; J. R. McGregor, Elora, Ont.; H. W. Hartman, Meaford, Ont.; A. E. Knapp, Kingston, Ont.; E. J. Hambly, Toronto, Ont.; J. P. Marshall, Toronto, Ont.; W. W. Thornton, Dresden, Ont.; M. S. Hawkins, Port Hope, Ont.; F. L. Dayment, Buffalo, N.Y.; J. B. Morrison, Montreal, Que.; Wm. Watson, Montreal, Que.; G. W. S. Cameron, Montreal, Que.; E. Lemieux, Montreal, Que.; E. Zinkan, Toronto, Ont.; C. Colter, Toronto, Ont.; J. S. Grassie, Welland, Ont.; C. N. Abbott, London, Ont.; M. F. Cross, Ottawa, Ont.; W. G. Kennedy, Montreal, Que.; E. C. Abbott, Toronto, Ont.; R. W. Frank, Toronto, Ont.; A. W. Muir, Fergus, Ont.; L. M. Mabee, Goderich, Ont.; L. G. Campbell, Markdale, Ont.; W. G. Switzer, Sudbury, Ont.; J. Mills, Toronto, Ont.; J. M. Cation, Toronto, Ont.; W. A. Sudworth, Ingersoll, Ont.; R. E. Sparkes, Kingston, Ont.; W. C. Macartney, Ottawa, Ont.; R. J. Munford, Glencoe, Ont.; H. V. Pogue, Lindsay, Ont.; M. G. McElhinney, Ottawa, Ont.; John Oppie McCall, Buffalo, N.Y.; W. J. Sanders, Brandon, Man.; J. A. Drummond, Petrolia, Ont.; W. H. Woodrow, Brockville, Ont.; V. L. Heath, Woodstock, Ont.; F. D. McGratton, Port Perry, Ont.; W. B. Taylor, St. Thomas, Ont.; F. J. Brown, Port Hope, Ont.; S. W. Bradley, Richmond, Ont.; G. E. Long, Harriston, Ont.; J. M. Wilson, Belleville, Ont.; W. E. Wray, Toronto, Ont.; C. B. Johnson, Winnipeg, Man.; J. C. King, Toronto, Ont.; E. A. Hill, Toronto, Ont.; W. Adams, Whitby, Ont.; N. Smith, Chatham, Ont.; G. C. Bonnycastle, Bowmanville, Ont.; G. K. Mills, Tilbury, Ont.; H. A. Wood, Peterboro', Ont.; F. L. Henry, Oshawa, Ont.; M. A. Fallis, Bobcaygeon, Ont.; H. F. Kinsman, Sarnia, Ont.; J. J. Broderick, Sarnia, Ont.; P. T. Coupland, St. Mary's, Ont.; W. M. McGuire, Waterford, Ont.; W. J. Hill, Alliston, Ont.; G. F. Wright, Madoc, Ont.; D. A. Black, Kingston, Ont.; G. A. Reid, Fergus, Ont.; A. H. Hertell, Berlin, Ont.; H. Irvine, Lindsay, Ont.; E. S. Barker, Steuffville, Ont.; D. C. Smith, Stouffville, Ont.; Frank W. Lew, Buffalo, N.Y.; A. E. Rudell, Berlin, Ont.; L. A. Maxwell, Toronto, Ont.; O. H. Zeigler, Toronto, Ont.; D. H. McCey, Buffalo, N.Y.; A. A. Stewart, Toronto, Ont.; F. C. Furniss, Canal Dover, Ohio; J. A. Hiliard, Berlin, Ont.; W. A. Dalrymple, Toronto, Ont.; W. J. Bruce, Kincardine, Ont.; A. M. Clark, Woodstock, Ont.; W. A. Piper, London, Ont.; F. Pollock, Listowel, Ont.; M. A. Morrison, Peterboro', Ont.; J. W. B. Topp, Bracebridge, Ont.; W. J. Preston, Creemore, Ont.; J. M. Sharpe, Toronto, Ont.; E. P. Smith, London, Ont.; J. B. Johnstone, Whitby, Ont.; C. N. Ross,

Hamilton, Ont.; A. Carmichael, Toronto, Ont.; E. W. Falcner, Sarnia, Ont.; E. F. Willard, Toronto, Ont.; A. W. Smith, Simcoe, Ont.; P. St. C. Smith, Toronto, Ont.; G. C. Phillips, Toronto, Ont.; J. A. Cerswell, Toronto, Ont.; S. T. Flynd, Toronto, Ont.; R. N. Berry, Caledonia, Ont.; F. C. H. Briggs, Hamilton, Ont.; J. F. Ross, Toronto, Ont.; F. G. Hughes, Waterloo, Ont.; R. J. Loughheed, Toronto, Ont.; D. J. Bagshaw, Toronto, Ont.; H. W. Branscombe, Pieton, Ont.; S. M. Edwards, Toronto, Ont.; E. M. Caldwell, Belleville, Ont.; F. C. Husband, Toronto, Ont.; D. Davidson, Woodstock, Ont.; A. M. Forbes, Toronto, Ont.; C. H. Holmes, Owen Sound, Ont.; J. F. McDonald, Hamilton, Ont.; A. McAlpin, Vancouver, B.C.; W. J. McMurray, Ingersoll, Ont.; C. A. Snell, Essex, Ont.; R. F. Morrow, Peterboro', Ont.; C. M. Dent, Ottawa, Ont.; G. H. Kennedy, London, Ont.; R. T. MacDonald, Hamilton, Ont.; C. Angus Kennedy, Toronto, Ont.

OFFICERS AND REPORTS OF COMMITTEES.



OFFICERS OF CANADIAN AND ONTARIO DENTAL ASSOCIATION.

First Row—W. D. Cowan, A. E. Webster, H. A. Clark, J. Irwin, J. G. Gendreau.
 Second Row—W. J. Bruce, C. A. Kennedy, A. J. McDonagh, W. E. Willmott, C. H. Clarkson,
 Wallace Szeembo, George Grieve, C. G. Scott, W. G. L. Spaulding, J. P. McLachlan.

OFFICERS OF THE CANADIAN DENTAL ASSOCIATION.

President.—W. D. Cowan, Regina; Vice-President.—Dr. Bush, Winnipeg; Secretary-Treasurer.—Dr. Barbour, Fredericton; N.S.—Dr. Thompson; P.E.I.—Dr. Ayres; P.Q.—Dr. Nolin; Ont.—Dr. Babcock; Alta.—Dr. Clay; B.C.—Dr. Nash.

Dr. Nolin, on behalf of the French speaking dentists of Montreal, invited the C.D.A. to meet in Montreal in 1912.

Vote of thanks to dentists and citizens of Toronto, for their entertainment, moved by Dr. Bush, Winnipeg; seconded by Dr. Murray, Moncton, N.B.; Spoken to, by Nolin, Quebec; Cowan, Regina; Barbour, New Brunswick; Oxner, Nova Scotia. Replied to by Webster, Thornton, McDonagh.

Moved by R. J. McLaughlin, Toronto, seconded by Dr. Woodbury, Halifax, that Dr. Webster appoint a Committee to approach the Conservation Commission, regarding the importance of the relation of the preservation of the teeth to the general health.

Dr. Webster, appointed the following: H. A. Clark, E. Lemieux, Seccombe, Webster.

Army Dental Corps.—Verbal report, by Dr. Rhind and Dr. Thompson, explaining the present status of the corps and the conditions governing the appointments. The militia department some time ago purchased a dental outfit for use at camp. A Committee made up of the Senior Officers was appointed, who have the matters pertaining to this corps under consideration, and will report at a later date.

OFFICERS OF THE ONTARIO DENTAL SOCIETY.

President, J. H. Irwin, Collingwood; Vice-President, W. R. Greene, Ottawa; Secretary, C. A. Corrigan, Toronto; Treasurer, C. A. Kennedy, Toronto; Archivist, C. G. Scott, Toronto; Supervisor of Clinics, E. F. Arnold, Toronto.

Program Committee—J. A. Bothwell, A. J. McDonagh, W. A. Black, J. A. Brett, W. E. Willmott.

Districts Representatives.—No. 1. L. E. Stauley, Ottawa; No. 2. H. V. Pogue, Lindsay; No. 3. W. G. Price, Toronto; No. 4. A. C. Burnett, Hamilton; No. 5. F. E. Bennett, St. Thomas; No. 6. L. N. Maybee, Goderich; No. 7. Geo. Hicks, Watford.

LEGISLATION COMMITTEE

To Board of Directors of the Royal College of Dental Surgeons.

Your Legislation Committee desires to report that it convened at Dr. Willmott's office and elected Dr. A. E. Webster, Chairman, and Dr. C. A. Kennedy, Secretary. There were two questions which seemed to be of sufficient importance to the Profession, to engage the attention of the Committee. They arose out of discussions which took place at the last meeting, of the Ontario Dental Society. The Legislation Committee of the Board of Directors, representing all the Profession of Ontario, seemed to be a proper body to take up these subjects.

After consulting the Pharmacy Act and the Dominion Drug Act, it was quite clear to your Committee that a druggist cannot sell whiskey to a dentist even though it be for medicinal purposes. In the Drug Act, provision is made for the sale of cocaine and other narcotics to the dentist if he desires to use them in his practice. Your Committee thought that a similar provision might be made in the Liquor Act of the Province of Ontario. After several consultations with your solicitors and with Mr. Saunders, the Deputy Minister, the following amendment was agreed upon:

"Nor shall anything in the said Liquor Act contained, prevent a druggist from selling to a dental surgeon, without a certificate of a duly qualified medical practitioner, spirits in quantities of not more than six ounces at any one time, for use in his practice as such dental surgeon, but no such sale shall be made to the same dental surgeon more than once on the same day, not until a requisition therefore signed by the dentist, and stating that he requires it for use in his practice, and has been filed with the druggist, and any violating of this sub-section shall be an offence under the Liquor License Act, and every such sale shall be recorded in a book to be kept by the druggist, under sub-section 2 of section 52, said Act."

We consulted with Mr. Hanna, the Minister, who said that this was a very reasonable request and saw no reason why it should not be granted. But for some reason, which we have not been able to find out, the suggested amendment of the Liquor Act never came before the House. In view of the hardship, which is likely to arise as the area of local option increases in the Province, your Committee believes that the suggested amendment should be again asked for.

The second question, which your Committee undertook to deal with, was to have such an amendment to the Educational Act, that would permit a Dentist's certificate of a teachers' illness from Dental causes, sufficient evidence before a School Board to obtain his or her salary during such illness. In this matter your Committee asked the assistance of Dr. Conboy, a member of the School Board of the City of Toronto, to accompany them to consult the Deputy Minister of Education, who as in the other case stated that the request was a reasonable one, and he would present it before the Minister of Education. The Minister stated that in as much as the Session was so far advanced at the time of the application, that it would be well to postpone action until next year and that he should like to consult with the Committee on this matter, before the next Session of the Legislature would convene.

All of which we humbly submit.

A. E. WEBSTER,

Chairman

C. ANGUS KENNEDY

Secretary.

May 3rd, 1910.

REPORT OF THE ONTARIO EDUCATIONAL COMMITTEE.

To the members of the Ontario Dental Society.

At the last meeting of the Ontario Dental Society the following Educational Committee was appointed. Drs. W. J. Bruce, Kincardine; A. J. McDonagh, Toronto; A. A. Smith, Cornwall; Wallace Seccombe, Toronto; W. C. Davy, Morrisburg; A. E. Webster, Toronto; J. A. C. Hoggan, Hamilton; F. T. Coghlan, Guelph; R. J. Reade, Toronto.

The Committee beg to present the following report of their work.

The Committee met for organization, and elected Wallace Seccombe as chairman and R. J. Reade as Sec.-Treasurer.

There were eleven meetings held during the year. At most of these meetings all the Toronto members of the Committee were present. Dr. Hoggan attended three meetings and Dr. Coghlan one. The plan was adopted of keeping in touch with the members of the Committee by correspondence, and by having the members take up the Educational work in their local districts. The first work of your Committee was to endeavour to define the possible scope of their work, of which the following is an outline:

1. To institute lecture courses on oral hygiene and prophylaxis.
2. To send out literature on oral hygiene and prophylaxis.
3. To outline the means of personal education of patients.
4. To maintain and advance the status of the profession.
5. To devise means to take care of the teeth of the poor.
6. To advocate dental examination of the public school children.

First in Relation to Lectures on Oral Hygiene.

At the following hospitals in Toronto, lectures were given to nurses in training:—The Hospital for Incurables, lecturer, A. W. Thornton; St. Michael's Hospital, lecturer, A. J. McDonagh; The Sick Children's Hospital, lecturer, A. E. Webster. The Committee appointed to take charge of this part of the work is in negotiation with Grace Hospital, the Western Hospital, and the Toronto General Hospital, with the view of establishing in these hospitals lectures to nurses in training.

In Ottawa, a course of lectures has been given to the nurses in training, in the Protestant General Hospital; W. R. Greene was appointed lecturer. The report sent in by Mark G. McElhinney in charge of the work of your Committee in the Ottawa district says: "It was thought well to wait before negotiating with the other hospitals until we are assured of the success of the first

attempt. No enlargement of the work will be attempted until next winter."

In Guelph, a course of lectures to the nurses was given in St. John's Hospital, by F. T. Coghlan.

In Niagara Falls, arrangements have been made to have a course of lectures given next fall, to the nurses in training in the Niagara Falls Hospital by Dr. Robb.

In Stratford, J. A. Bothwell reports that arrangements are under way for dental lectures to be given to the nurses in training at the Stratford Hospital. It is expected that these lectures will begin in September.

In Peterborough, W. C. Gowan reports that lectures were given in Nichol's Hospital and St. Joseph's Hospital, one lecture in each hospital, each of which was given by W. C. Gowan.

LECTURES TO NORMAL SCHOOL TEACHERS IN TRAINING.

In Ottawa the lecture was delivered to the teachers in training by Mark G. McElhinney. In Hamilton, J. A. C. Hoggan, lectured to the Normalites. In Stratford, J. A. Bothwell, gave a course of lectures to teachers in training at the Normal School, he also gave an address to the teachers of the city schools, comprising those of the public schools, and of the Collegiate Institute.

Your Committee arranged that a paper on Oral Prophylaxis be included in the programme of the Ontario Educational Association Convention at Toronto. R. G. McLaughlin, of Toronto, prepared the paper. Its publication by the Ontario Educational Association will give it wide publicity, throughout the province. J. A. Bothwell, in his report says: "I might add that about the New Year, I introduced the matter of medical examination, (which of course would include dental examination), at the School Board, and the matter is now in the hands of a special committee. As there are two members of the dental profession, Dr. Eidt and myself on the special committee, it is needless to say that the dental examination will not be neglected."

The question of Public School Inspection was also taken up with members of the Board of Education of Toronto. A system of Medical Inspection has been started in Toronto, but the appropriation was not sufficient to include Dental Inspection, though the need for Dental Inspection was recognized by the members of the Board.

The suggestion was made to your Committee that the Medical Examiners also make the Dental Inspection, but your Committee discouraged this plan, preferring rather to have the matter stand over for a time, than to have it commenced under a system that would not be effective. The judgment of your Committee, is that the only kind of Dental Inspection that would be efficient is inspection by a dentist.

With regard to literature for distribution, the Chairman of

your Committee interviewed Mr. James, the Deputy Minister of Agriculture, with regard to issuing a pamphlet of instruction for distribution in the Province. Mr. James informed the Committee that the Agricultural Department would be willing to print, at Government expense, fifty thousand pamphlets, and also illustrate them. These pamphlets will be sent to the members of the Agricultural Societies, to members of Women's Institutes, to school teachers through their inspectors, twenty copies also will be sent to each dentist. Much time of the members of the Committee was taken in constructing a suitable paper, but it is now in the hands of the Government, and will be issued in due time. There is also another pamphlet being prepared for your Committee to be published later on by the Agricultural Department.

With reference to the Ontario Agricultural College, F. T. Coghlan reports that a large number of teachers attend the College each year. Dr. Coghlan, was authorized to interview those in charge of the Agricultural Institute, with a view to having a series of lectures delivered to the students of the College.

Your Committee appointed a sub-committee to interview the authorities with regard to the feasibility of appointing a dentist on the Normal School Staff to lecture on oral hygiene. Dr. Secombe reports an interview with Dr. Seath. The Department is not in favor of specialists lecturing in the schools. Dr. Seath considers them too technical. Under the regulations the Science master is required to give lectures on hygiene and physiology, and thus would include oral hygiene, but the local Science master may ask a dentist to give an address. Thus the work in the Normal Schools will have to be carried on from time to time through the local men where these schools are located.

The question of certification of sickness of school teachers was brought to the attention of the Committee. It was pointed out that if a school teacher was unable to attend to her duties at school, and was forced to absent herself, owing to indisposition resulting from a diseased condition of the teeth, for example, alveolar abscess, it was necessary for her to obtain a physician's certificate of illness, although the said physician never saw the case.

In order that a dentist's certificate be accepted provision must be made in the act. The question arose regarding the scope of the work of this Committee, and was it within the province of this Committee to deal with such matters of legislation, as that being now considered. This is a matter for the Ontario Dental Association to determine.

A letter was sent to the Minister of Education with respect to this certification. A reply was received from the Department stating that the Minister was away, and that the letter was to be submitted to him on his return. Nothing has been done by your Committee, because it was not known exactly what the duty of the Committee was, with respect to these matters of legislation.

OUTLINE OF COURSE OF LECTURES TO NORMAL STUDENTS IN TRAINING.

During this year your Committee received a number of enquiries regarding the outline of the lectures to be given to Normal Students. It seemed desirable that there should be to a certain extent, uniformity in the subject matter, discussed with the students. A sub-committee was therefore, formed to outline these subjects. Owing to the late appointment of that Committee, their report has not been handed in.

THE PUBLIC LIBRARY.

The Chairman of your Committee had an interview with Mr. Locke, of the Public Library, who expressed his willingness to catalogue books on dentistry, which were of interest to the public. We are glad to be able to inform you that Guerini's History of Dentistry is now catalogued in the Public Library, in Toronto. Your Committee beg to recommend that this important work be followed up in the other libraries of Ontario. To this end the assistance of dentists throughout the Province will have to be secured. There are many Dental books of public interest that would prove of great educational value, and ought to be in the different public libraries of the Province.

THE CARE OF THE TEETH OF THE POOR.

In his report Dr. Hoggan of Hamilton, writes: "The Hamilton Dental Society had taken for their special object during the past year, the accomplishment of some care by the Municipality of the teeth of school children who were unable to afford the cost of proper dental attention, and the matter was carried to an almost successful completion, every hope being entertained that this end would be accomplished, but at the final, in consistence with the average Board of Education, the question was laid over for another year.

Your Committee feel exceedingly optimistic in regard to Public Dental Educational work in the Province. In every instance those whose interest was sought seemed to recognize the great need, and were willing to help in any possible way. In view of the combined meeting of the O.D.S. and the C.D.A. it might be well to consider the advisability of urging upon each Province the desirability of appointing an Educational Committee.

Dr. F. E. Bennett, of St. Thomas, reported verbally the progress of the Educational work begun by the Elgin Dental Society. This Society has been carrying on some excellent work including an illustrated lecture to the citizens by Dr. Noyes.

RESOLUTION RE DR. BLACK.

Resolution.—Moved by A. W. Thornton, seconded by Dr. Klotz, and wired to Dr. G. V. Black, Chicago: "The Canadian Dental Association, and Ontario Dental Society, in joint convention, by unanimous resolution of the members in accordance, wish to ex-

press to Dr. G. V. Black, greetings, and their deep appreciation of his services in the cause of Dentistry."

Reply from Dr. Black:

Chicago, Ill., June 4.—I greatly appreciate your kindly greetings, accept thanks.—G. V. BLACK.

Educational Committee of the O.D.S.—Seccombe, Reade, McDonagh, J. A. Bothwell, (Stratford), McElhinney, Coghlan, A. A. Smith, and W. C. Gowan.

Committee appointed by President of the O.D.S. to consider ways and means of looking after teeth of the poor; especially in Government Institutions.—Dr. A. E. Webster, Dr. A. W. Thornton, H. A. Clark.

Moved by Thornton and Webster: "That the Secretary write those gentlemen outside of Canada, expressing our gratitude for that which they have contributed toward the success of the present meeting."

ROYAL COLLEGE OF DENTAL SURGEONS VS. GORDON.

Chief Justice Meredith, dismissed the action with costs, brought by Dr. Gordon of the Toronto Painless Dental Parlors, to restrain the Board of Directors from taking action under their by-laws, which give them the power to discipline members of the profession, Chief Justice Meredith followed Judge Anglin, who had given judgment in a similar case. The former case was appealed but failed to finally settle the point in question. Dr. Gordon's lawyers say this case will be appealed.

By this judgment the by-laws of the Board stand, and dentists must hereafter practice under their own names, and cannot be employed to practice dentistry as an employee of another; nor can a dentist allow any one who is not a dentist to perform dental operations in his office without himself becoming liable for discipline before the Board. The Board of Directors deserve the gratitude of the profession and the public, if men who are not dentists can be hindered from controlling the practice of dentistry.

Dominion Dental Journal

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VOL. XXII

TORONTO, JUNE 15, 1910

No. 6

THE CANADIAN AND ONTARIO ASSOCIATIONS COMBINED MEETING.

The largest meeting of the Canadian Dental Association was held in Toronto, May 31st, June 1, 2, and 3. The Association combined with the Canadian Medical Association to make certain that there would be a sufficient number in attendance to insure a free return railway fare. By noon of the second day of the Dental Association there were over three hundred certificates presented. The total registration was four hundred and twelve. A full list of the names appears in this issue.

In point of scientific advancement other meetings have been of greater value, but none could compare with it for goodfellowship. Dentists from every part of Canada were present, as well as from several of the border states. The greatest value from the meeting will undoubtedly come from its educative value to the public as well as to the profession. Many committees were appointed, whose work will bring the value of dentistry before the public and governmental bodies, as never before.

The Dominion Dental Council held its meetings, Monday

and Tuesday morning, May 30th and 31st. A few important changes were made to the constitution. See full report.

The report of the educational committee, of the Ontario Dental Society, was interesting, and shows what can be done by organized persistent efforts.

The report of the Canadian Oral Prophylactic Association showed what could be done all over Canada in interesting the profession and the public in dentistry.

The clinics were numerous and well attended.

The exhibits were excellent, and covered every dental appliance now in use.

The dentist's wives of Toronto gave the out of town ladies a drive and served tea in the college when they returned. The men were invited, and attended in large numbers.

On the third day of the meeting, over four hundred of the members and their guests went to Niagara Falls, the steamer Turbinia landing them at Dalhousie, where trolley cars were in waiting to convey them to Niagara. A very excellent luncheon was served at the Clifton House, after which the party was divided into three sections to visit three of the large power plants, for which Niagara is noted.

An important part of the meeting was transacted on the boat, both going and returning. All the reports of committees were received and recommendations made officers elected and committees appointed.

Friday afternoon, bowling and golfing games were enjoyed by over fifty visitors.

D. M. MITCHELL.

Editorial Notes

Dr. Agnew, Medicine Hat, visited Gleichee, June 1st.

Dr. S. B. Gray, Stratford, lost his entire office outfit by fire, May 31st.

Dr. J. S. Brookes has published a very neat eight page pamphlet on the care of the teeth, for distribution among his patients.

Does anybody doubt the progress of dentistry in Canada, even though it was said little has been done to prevent teeth from decay during the past twenty years.

To make a cast gold inlay, which will not need any occlusal grinding at the time of setting, place one thickness of rubber dam over the wax model in the tooth, when taking the bite.

Dr. Island, Toronto, who has been known as an inventor and student of Metallurgy, is reported to have discovered a process of recovering silver from ores, which is so much less expensive than former methods, that he has been offered \$6,000,000 for the patents.

Dominion Dental Journal

VOL. XXII -

TORONTO, JULY 15, 1910

No. 7

Original Communications

THE PRACTICAL APPLICATIONS OF CASTING TO PROSTHETIC WORK

BY F. E. ROACH, D.D.S., CHICAGO.

Professor of Prosthetic Dentistry, Illinois University.

Read before the Dental Society of Western Canada at Winnipeg, April 18, 19, 1910.

As stated, gentlemen, by your worthy President, I would like to have you understand definitely and distinctly that I am not here for the purpose of showing you anything that I have in the nature of an article for sale. What I hope to be able to show you in these pictures is some ideas, so that you will be able to make a general application that may be of use to you in your practice in many respects. The idea I want to convey in the construction of these various partial cases is that we are doing it with the view of mutilating the remaining teeth as little as possible, and in the supplying of the adequate teeth or teeth that are lost, that in the wearing or the use of these dentures there will be the least injury to the remaining teeth.

PLATE I.

In the first picture we have a case which is not uncommon at all, and in a great many of these cases we are successful with the use of the ordinary fixed bridge. The two methods that are commonly resorted to for supplying these cases are the ordinary suction plate, so called, and the fixed bridge. In this particular case, and in a great many of these cases, it is quite impossible to treat them successfully with a fixed bridge, and to supply these four teeth on a plate in most cases, to my mind, is almost barbaric. So that, in order to supply these four teeth in a way that would meet the conditions that exist in this case and a good many cases that we meet with we have to bear in mind this fact, namely, that there is a very considerable absorption. This case was one of a young lady who had a very short upper lip, and she showed her teeth very much, and there was a risk of making an unusual appear-

ance. We had to supply these teeth with the occlusion—a rather protruding occlusion, the lower teeth occluding into these teeth in such a way as to make a very considerable strain or leverage on the teeth—and to restore the previous effect was very difficult. The strain or leverage applied to those teeth would have meant the loosening and the loss of these cuspid teeth with the ordinary fixed bridge. With the shape of the arch and the extent of the overbite and the pronounced protrusion of the anterior teeth the leverage would have been too great on these cuspid teeth. It would undoubtedly have resulted in the losing of these cuspid teeth. Then, to have supplied it with the ordinary fixed bridge, it also would have been a very unsightly piece of work in this particular case. And I may say in the most of these cases we cannot get the best and most artistic results with the fixed bridge, so that by supplying this little saddle, working with a little metal saddle, making it of platinum, so that the porcelain work may be made



Plate 1

of all porcelain, and in filling, devitalizing the pulp, and then placing one of these little buttons directly at right angles into the cuspids, we are able to supply a removable saddle-bridge (making this saddle of considerable area, as you will note here in the picture), and supplying the teeth and making it of porcelain, it is possible to make a very artistic piece of work, and we have mutilated the remaining teeth the very least possible. The object is to make this attachment with the saddle so constructed that it does not come in contact with the remaining teeth, thereby producing the least possible injurious effect upon the teeth during its use.

PLATE 2

Here is another one which was a very interesting case, and a case where it was very difficult to supply the teeth satisfactorily. These remaining three teeth, the two molars on the right side and one on the left side, were good strong teeth, very strong and rather conical in shape, and decidedly unfavorable for the use of

clasps. The ordinary suction plate had been tried by a number of our best prosthetists, and with rather poor satisfaction. The alveolus was pronounced, and all around the anterior was very soft and yielding and very flabby and a poor and unstable support for the ordinary denture. It was also a very flat, dry mouth,



Plate 2

which, as you all know, makes it difficult to get good suction. It was necessary to resort to some radical measure to supply teeth in this particular case, and in order to do it these little buttons were attached to the molars on either side. The first case that was made for this patient, the saddle constructed up here to carry the teeth, was terminated at the first molar. This proved to be a mistake. It was unsatisfactory for the reason that the unstable foundation for the saddle and the leverage from such an amount of saddle, that is the extension from the molars to the anterior portion of the plate, brought too much leverage upon the attachments, and there was a tendency after a little while, owing to the yielding of the tissues, for the plate to work up and down in front. There was not that balance to it that is necessary, and it did not have the stability so desirable. To overcome the difficulty I took rather a new departure. I had not had any experience myself, nor had I any knowledge of such procedure or such a method having been used, extending these wings back over the distal portion of the mouth to balance the plate. This, however, did prove to be a very successful means of balancing the denture and assisting in holding it in place. By extending this wing back over the palatine surface laterally, having these attachments at this point, the tendency then of the plate to drop anteriorly was reduced to a minimum, by the fact that the fulcrum was extended back to a different point.

PLATE 3.

Here we have a class of cases that are very common, the teeth lost right back of the six anterior teeth, uppers and lowers. To supply teeth for these cases all must agree that they are more or

less unsatisfactory. Some of these cases, of course, can wear the suction denture very satisfactorily. On the other hand, there are cases that do not get along so well. We all know the difficulties in connection with clasping. You know the clasp for a cuspid tooth is more unsatisfactory than otherwise in the majority of cases. So for that reason it becomes necessary to resort to some mechanical means of retaining the denture in the mouth. This was the case of a public speaker, a minister, and, having all kinds of trouble with the suction plate, he was almost in desperation to get teeth that he could use and keep in his mouth comfortably and satisfactorily while speaking. The anterior teeth remaining were all in fairly good condition. The cuspids were perfectly sound. I felt that radical measures were necessary, and consequently the pulps were removed from these cuspid teeth and these buttons were anchored in laterally from the outside surfaces of each of these cuspid teeth and a saddle put on, as outlined in the picture. In this particular case, as you will note, the plate is permitted to come up and overlap the lingual surfaces of the

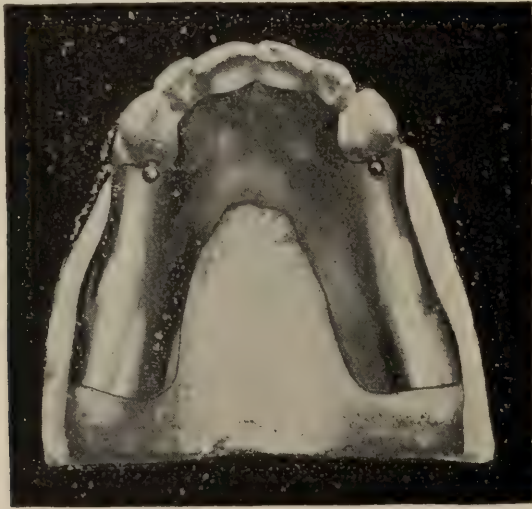


Plate 3

anterior teeth. The reason of the necessity of that was the fact that the cuspid teeth were exceedingly short, and for that reason there was not room at the point of the attachment for any contact point above the attachment, the idea being that, as a rule, when we are going to make the attachment to these teeth we must have a rather long tooth, that is, a tooth that is sufficiently long so that we can make our attachment near the gum, so that the contact bears near the incisal of the tooth, which will resist the tendency of dropping at the heel. In order to make a rigid attachment to this cuspid that would hold this plate up and hold it in position, it was found necessary to bring the plate around over the lingual surfaces of the incisors, in order to overcome the leverage that would be brought to bear on the cuspids were we to use the attachment on so short a tooth. Then in that case, instead of having a

very short lever, in making the attachment there by running the plate over the lingual surface, we have extended the fulcrum to the most remote place, thereby reducing the leverage on the cuspids. Then where we allow the plate to come in contact with the lingual surface of the tooth at all, in my opinion it is better to lap over onto a considerable surface of the tooth rather than terminate it just at the junction of the gum.

PLATE 4.

Here we have a similar case to the one just shown, except that in addition to those anterior teeth we have the bicuspid. These pictures are all taken from actual cases, cases in practice, and they are not made of fanciful cases made up for ideal purposes. They are exactly as I found the cases in practice, so that I am frank in telling you the difficulties and the failures I have had, and wherein I have made the failures. I hope in that way to help anyone who has not had experience with this class of work. I made mistakes—many of them—and I am always willing to tell the other fellow about my mistakes and let him profit by them.

Now in this case, it is very similar, as I say, to the other except we have bicuspid. This is an ideal case. That is, it is a typical



Plate 4

case for the use of the attachment with the strip running across the palatine portion of the mouth from side to side. It is absolutely unnecessary to make a full-sized denture covering the entire roof of the mouth. This denture has given me a great deal of satisfaction, and I would like to place special emphasis upon the importance or advantage of making these cases where it is possible to do so in this way, cutting out the plate to terminate the margin of the denture just in at the back of the rugae. In that way you leave the rugae uncovered and you leave the lingual surface of the anterior teeth untouched. The tissues are not irritated, and there is not the likelihood of injury to the teeth. It is a typical case

for the use of this form of denture, for the reason that the bicusps we are anchoring to are long teeth. This ball could be placed well down on the gum near the gingival. By reason of the length of the tooth we had a very long bearing. I might say, in the supplying of these cases or any partial case for that matter, it is my opinion we had better supply one tooth in a case like this and to have it a success than to supply four or five teeth and have them a failure. I would always reduce the number of teeth and the amount of extension to the minimum, if I question the strain that is going to be brought to bear. For that reason minimize the number of teeth and make them do the maximum service.

PLATE 5.

Here is another case of a similar type except we have a molar left on the right side. The use of the fixed bridge on the one side might be possible, but owing to the fact that the teeth are out on the opposite side it is necessary to supply those, and a very much more satisfactory denture could be made by supplying these on the

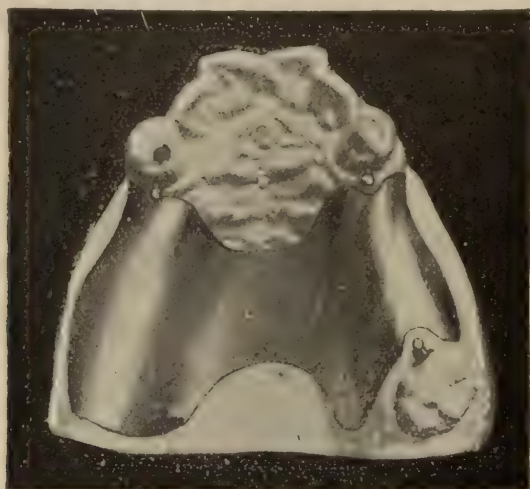


Plate 5

same removable device, and you will note the freedom that is given by the termination of the plate at a remote point, or away from the margin of the tooth so as not to impinge. Here we have three attachments. There would not ordinarily be the necessity for but two attachments. Many of these cases, bear in mind, can be made successfully and just as successfully by the use of clasps. It is the fundamental principle that the plate outlines which I want you to bear in mind, not to get the idea that this attachment as pictured here must be used in each of these cases. Now, in this particular case this molar tooth could have been clasped very satisfactorily for the reason that it was a very favorable tooth. It was a round and long tooth with a rather straight surface, a tooth, that while it doesn't show in this picture, required no grinding. So that especially when we are placing crowns on these teeth they can be clasped very successfully. I see no objection at all in placing clasps

on teeth that have artificial crowns. But in this case it wasn't necessary, and in most cases of a similar nature it would not be necessary to place the attachment on three of the teeth. In cases such as this it would be possible or permissible to use the rigid attachment, in a case that has a free end—for instance, if this case had not the molar here—if this were extended from the cuspids back on both sides and had not a remaining molar tooth. I would consider it very bad practice to place a fixed or rigid telescoping attachment on these cuspids, for reasons I will show later. Now, as I say, it would not be necessary in most cases to place attachments on three of these teeth. Usually the molar and cuspid will suffice, for we have this line of resistance, that is, our attachment at this point, and we have then the plate balanced. There would not be the tendency of this to drop at the heel on this side, because it is counterbalanced by the pressure or the bearing at this point, and vice versa.



Plate 6

PLATE 6.

Here we have another similar case, except it was not thought wise or necessary to attach to the anterior teeth. As you will note here the last tooth on the left side is the central incisor. On the other side we have a cuspid as the last tooth of the anterior teeth and below molars on either side. This was made after the previous case, and the idea of using this wing extension on the palatine surface was to give it an equal overbite, thereby avoiding the necessity of mutilating either of these anterior teeth, for the purpose of holding the plate up in position. Then we have here our attachments at the molars. If the plate tended to drop anteriorly it would be counterbalanced and counteracted by the extension of this wing distally, and there was not the tendency to drop posteriorly.

PLATE 7.

Here is a picture of a very interesting case. This looks somewhat peculiar, but it is the reverse of the denture that is

supposed to fit on the model below. The condition of this case was such that it seemed almost impossible to supply these teeth (between the cuspid and the molar) in a way that would be satisfactory. When the case was presented there was a bridge on. The cuspid was the anterior abutment. It was a bridge supplying three or four teeth, and it had become loosened. It seemed as if the cuspid was loosened too, and I felt if I put in fixed bridge work there wasn't a question at all of the short life of the bridge. Of course the teeth outside this space were good, sound teeth, and it seemed a pity to mutilate them any more than to supply the anchor and this little button, and to supply this, as I say, would surely mean a short life, so that in order to supply the teeth in this case a



Plate 7

gold crown was made for the molar and a porcelain face crown made for the cuspid and a half round clasp gold wire was extended along the summit of the ridge between the molar and the cuspid and were soldered together, supporting them from the mesio-distal relation, binding them together in that direction (indicates) and then working up this saddle with a tube to correspond with a ball at the central point, running this strip across to the other side to a tube that telescoped over this tooth. In this way they were supported for the upward thrust, which was a condition we had to contend with on the opposite side. It was made a very successful case and I feel the life of this cuspid tooth is very materially extended by giving it this additional support.

PLATE 8.

This shows the case as it was made, the position of the saddle, the size of the saddle, and the condition as it would exist. All these cases I show you are made of gold, the saddles are constructed of gold, and the teeth may be attached of course. In this case the plate is made of gold and the teeth are detachable, cemented on

afterwards. Most of these cases, or a great many of them, are made in that way, or they may be made with gold saddles and vulcanized attachments.

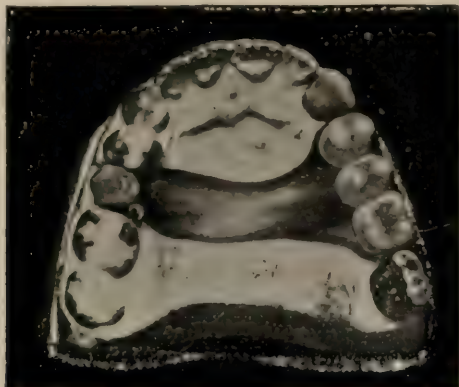


Plate 8

PLATE 9.

We come now to a class of cases that are most common of all partial cases that come into our hands, a class of cases which, in my opinion, there has been more abuse and more damage done in the mouth than any other class of partial denture. This is a class of cases that I might almost say is a hobby of mine. I have become very enthusiastic in the case of the lingual round wire for these cases. They are most common and liable to break. They are the most common repairs we have. You will find injury done to the gums and the lingual surface of these teeth almost invariably. The lingual surfaces of these teeth are injured and an unhealthy condition exists, and I can hardly excuse any more the use of the old style construction of a denture that necessitates the covering of the lingual surface of the remaining lower teeth.

PLATE 10.

This shows the lingual aspect of this same construction, showing the location of this wire. I know that a great many have tried this construction of plate and have failed. They have met with failure, principally due to one cause. My observation is that almost invariably this wire, this bearing connecting the sides, is made to fit too closely to the tissue. This is a mistake. I made a number of these cases before I learned how to use them, and it is a mistake that is very commonly made, and it is one that it seems hard to overcome. Our disposition in the construction of all our partial dentures is to have the plate part of that denture fit as snugly as possible. Not so with this class of cases. You will meet with success in this class of cases almost invariably if in the construction of them you will place this wire not closer than a millimeter from the model. After you have your model this wire can be bent around and put in place very quickly and very easily. Do not

place it too close to the model. I have a couple of models here and I would like to have the members examine them.

The reason for this is this wire running from side to side is a piece of metal. It is drawn and tempered. If wire varies in size from one side to the other and consequently is very much more liable to break. Being made too of gold wire, platinized gold, it is a strongly tempered wire and will not become bent and out of shape as will a gold plate. Of course your vulcanized plate will spring back, but they are continually breaking. You will note these are the most common repairs we have, these vulcanized cases,

Plate 9

Plate 10

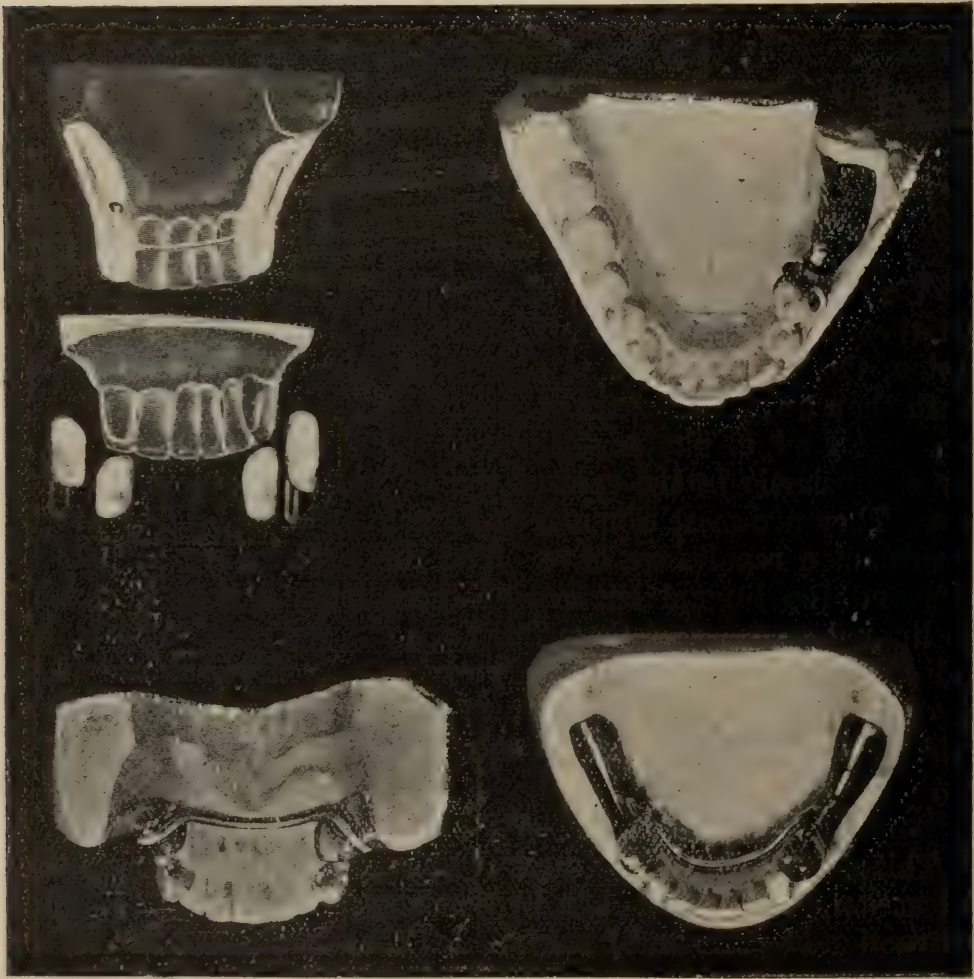


Plate 11

Plate 12

breaking in two somewhere along the span from one side to the other. This is due to the fact that it is impossible to construct these cases so that they are of uniform strength from one side to the other. There is always some one point that is weaker than the rest, and that weak point of course continually gets the strain, and it is just like a piece of metal or a wire that we have filed a notch into, it makes that one point easily broken and the plate will be broken at that weak point in time. If I can convince you and get you to use it and use it until you have mastered the technique of its use I am sure you will be glad, and I certainly will be repaid for

my visit to your city. If I could only impress upon you the value of this particular construction of these partial lower cases I would be happy. I am exceedingly enthusiastic about this, and justly so, for I have used it for ten years, and I have yet to see one of these cases broken or distorted, and that is saying a good deal. The question is so often asked, "Why, it doesn't look strong enough, it looks so frail. Is it strong enough to stand the wear and tear?" My answer always is it is the strongest denture you can make, regardless of how you make it, and regardless whether it is made of vulcanite metal or gold, or whatever you use for making the saddles. Make the saddles of these lower cases with a round wire made of clasp metal, taking twelve or thirteen gauge, probably in most of these cases using twelve gauge wire, and I feel perfectly safe in promising you you will not have any trouble with them. You will not have any broken dentures, and when you have learned to place them in proper position you will not have any trouble with them in any respect, and your patients that have worn the other form will appreciate it more than you can imagine. The tissues are kept so much more comfortable and healthy. We have this condition to contend with in these lower cases to a greater extent than any other in that the saddle itself rests upon the alveolar border only, while in the upper it covers a portion of the hard palate, and so for that reason receives some support. In the lower it rests upon the alveolar border, and there is hardly any limit to the absorption and the settling down of these saddles, so in the construction of these cases, if we have made our saddle, and we have made a plate that has a body against the lingual surface of these teeth, and these tissues around the lingual surface, this plate settles down upon the eminences and causes untold injury that you will not have in this form of construction suggested. If you are going to make a gold plate or a porcelain constructed plate, or if you are using porcelain on the saddle, it is so much easier to make these cases than others. Another advantage you have in this case is, all you have to do is to take a good impression and make a model—just such a model as the plaster model I have shown to you. You haven't to make the die, or go to the trouble of making a counter die for this, and swadging up the plate to fit all around the irregularities of these remaining teeth, which in itself is a chore in a good many cases. It is a part of the work that dentists shun and send to the laboratory, and it is a lamentable fact that the profession are sending so much of this work to the laboratories, but we can't much blame them when they are constructing these lower cases, where they are trying to make gold plates fit up around the lingual surfaces. That is the principal advantage of this particular class of construction, that they are so much stronger and there is less wear on the denture and less irritation to the tissues.

PLATE 11.

This is another class of cases we meet with very frequently, and I believe it is one which is generally conceded to be one of the most difficult cases to make anything like a success of, the supplying of molar surface on these lower cases (or uppers for that matter), where the teeth are out on one side only. Two things must be taken into consideration if we expect to make these cases a success. There are two things that must exist in their condition as they come to us, in my opinion, that must be taken into consideration, and that is the prominence of the ridge. This ridge must be a well defined, broad, solid, unyielding, and well pronounced protrusion. The other is that the bite, the length of these teeth you are going to supply, be not too long. If we have one of these very thin, narrow, cartilaginous yielding ridges that we all meet with so often in these lower cases and the bite is too long, there is no stability to this plate. It will wobble around and will not stay in place, and will prove very unsatisfactory. In cases where we have a well defined ridge and rather short bite, it is possible to put plates in these cases by means of a swivel attachment in combination with the clasp. The swivel serves the purpose of holding this saddle down in place and preventing its going up and down. The spring or clasp would overcome, or assist in a measure, the tendency to a lateral swing, in connection with the well-defined ridge, with a liberal sized saddle fitting snugly around it. These are the conditions which, in my opinion, must exist in order to make a success of these cases.

PLATE 12.

I show this picture merely as an example of another method that has been used for connecting these lower parital cases. This is a cut that was shown in the *Dental Review* in connection with an article published or read by Dr. Alexander on "Removable Bridge Work," and he had constructed his saddle using a stable attachment, making a Carmichael fixed telescope under the cuspid, and then another telescope that telescoped over that one, making to my mind a very bulky piece of work for the attachment to the cuspid, and then placing this wire across the lingual surfaces of these teeth, to my mind in the place that would be the most in the way of anywhere it could possibly be placed, and for fear that some of you who haven't had any experience in these cases (and I know there are younger men in the profession who haven't used this wire connection) might attempt to use these cases with this form of attachemnt, I show this picture, just for the purpose of calling your attention to that one form of construction that has been used. In my opinion it is the worst possible way of connecting these saddles, and this wire here is proportionately too small. I saw the model at the time, and I think the doctor had used about a 16 gauge, 16 or 18, and used rigid platinum. The rigid platinum wire is not as good as the gold. The rigid platinum has a stiff

stiffness without the spring. The spring that is in the gold clasp metal is more desirable and the gold clasp wire is stronger in my opinion. If you use 12 gauge and not smaller than 13 gauge you need not be afraid of having any breakages or any trouble. I prefer the round wire. Many of these cases that I know of have been constructed since the casting method has come out. They have cast these connecting bars and used half round wire. I made a good many of these myself by stretching a smooth piece and half round wire and soldering them together, and I wanted this part of my plate to fit close up to the tissues. This is a mistake. You don't want the plate to fit up close against the tissues, and if you bear that in mind in the construction of them you won't have any trouble, and if you do have them close there will be irritation there and you will have to make them over.

Plate 13

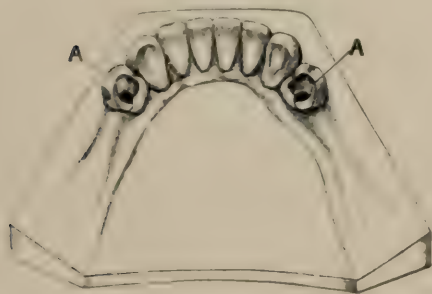


Plate 14

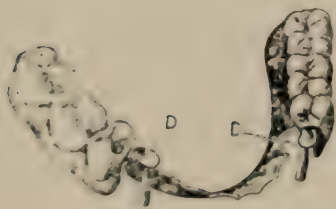
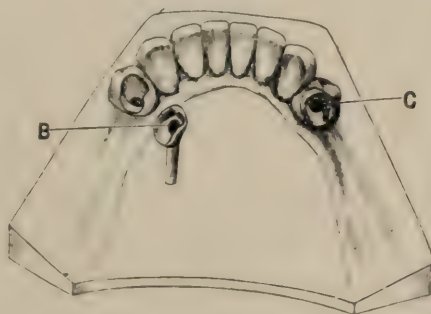


Plate 15

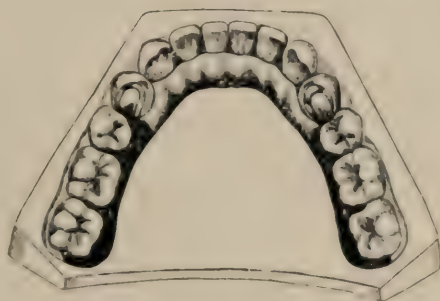


Plate 16

PLATE 13.

I want to show you now, in the next three or four pictures, a set of cuts that were published in the *Cosmos*, in an article written by Dr. Pennington, of Pittsburg, showing his method of making the anchors in these lower cases. There are two points I want to make in the use of this particular form of construction, and that is the use of the rigid telescope attachment. It was the purpose of Dr. Pennington to show the use of the Peeso split pin telescope attachment, a very excellent method in some cases—in double abutment cases. I had a tooth back here and a tooth there (indicates) and wanted to supply a bridge, what we term a double abutment, and in a case of this kind the Peeso split pin method is most excellent. This shows the case in its original state, with

cavities in these bicuspid just where we want them, prepared, ready for the inlays.

PLATE 14.

This shows the inlays constructed, as made by Dr. Peeso, the inlays made with the tube running up into the pulp canal to accommodate this split pin which is to be subsequently made. This inlay is made to fit the cavity and is cemented to place, and this split pin is fitted into the tube and cap piece soldered over the top of the tube to fit, and makes a fresh surface with this depression that is made in the inlay.

PLATE 15.

This shows the case complete, ready for insertion in the mouth, showing the pins and the little flange which is to cover up the depression in the inlay, and showing the old form of plate construction fitting in around the lingual surfaces of the teeth.

PLATE 16.

This shows the plate in position, with its bearing against the lingual surfaces of the teeth. Now, what are we going to have in this case in a short time? In all these cases that have come under my observation we have a very considerable and rather rapid settling of these lower cases, regardless of whether it seems to have been fully absorbed and in good condition. I find them invariably settling down, and if there is a considerable settlement of this molar and bicuspid surface the result must necessarily be, if we have placed here a rigid telescope attachment on this anchor tooth, that it is going to rest on this point when it settles down, and as a consequence you have a leverage brought to bear on this tooth which will result in its loosening. It brings a strain, a tension on that tooth which is not beneficial. Then of course there is the injury which would occur around the lingual surfaces of the teeth, which I have already spoken of.

PLATES 17, 18, 19.

Fig. 17 shows ball and tube as prepared for use. Fig. 18 shows the tube flattened on one side and a piece of No. 16 gauge wire correspondingly flattened to facilitate soldering and to minimize bulk at that point. Fig. 19 at A shows the tube and wire held in a pair of pliers ready for the soldering. At B is a posterior view of the same appliance, showing how one end of the wire is bent over the top end of the tube and the other end is formed into a loop for the attachment of the vulcanite.

The impression tray is manufactured and got out for my own purposes, according to my suggestion. The anterior portion of it is entirely cut away and it is very long at this point (indicating on diagram) so that it passes down, and you get a good impression. What we want in these cases is a good impression of the floor of the mouth. It is cut

away here and curled back at the heel so that it doesn't dig into the back part of the mouth when taking the impression, and by



Plate 17

means of that one tray you can get an impression of almost any of these partial lower cases. 22 is the number of the tray. I think



Plate 18

it should be given a different number, but I notice it is the same pattern as the Angle tray, except that it is cut away anteriorly

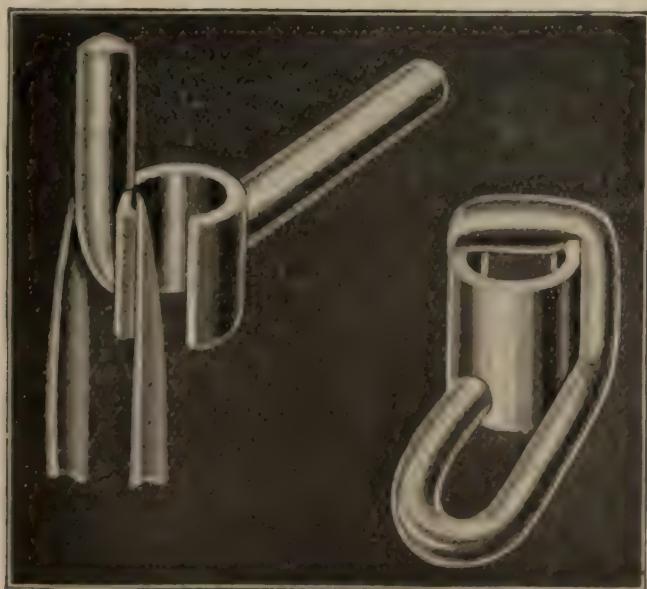


Plate 19

and then, instead of being a perfectly straight tray it is bent up at

the heel. They have made dies, so if you ask for 22 tray you will probably get the impression tray.

A CAST-BASE PORCELAIN CROWN.

If I may have just a few minutes more, I want to explain to you the technique of the construction of the cast base porcelain crown, which, to my mind, is the best porcelain crown, the best crown for the anterior teeth that it is possible to make.

The cast base affords to my mind the means of the most accurate adaptation and peripheral continuity of our crown with the end of the root, that it has been my pleasure to use, and the more experience I have with this crown the more satisfied with its superiority over any crown that I have ever used. For a great many years it was my practice to make all of my crowns for the anterior, and for a great many of the back teeth of all porcelain, building up the entire crown of porcelain, this being the method, of course, that offered the greatest possibilities of artistic results but requiring a great deal of time, and being of more or less questionable strength as compared with the crown we can buy from the manufacturer. The porcelain in the manufactured crown is a stronger porcelain than we can possibly make, in the way that we have to make it. Then the process is so much shorter, that I think we are not justified in making the porcelain crown by building it up in its entirety, so that I wanted to explain to you the technique of the construction of this cast base crown.

No doubt many of you have your own technique, and no doubt many of you have technique and methods equally as good, and yet there may be some that have not a satisfactory method, and it is for those of you who are not satisfied with your methods of constructing this particular kind of crown that I want to explain this to you.

In the first place the root preparation is of vital importance in the construction of the cast base crown. After the canal is opened and enlarged, a dowel is fitted to it, after selecting the proper size for the case; then the opening into the canal is counter-sunk, slightly enlarged at the opening of the canal. In the first place we enlarge the canal only sufficiently for the dowel that we are going to use, and then at the periphery or at the orifice we counter-sink this so as to have the opening considerably enlarged just at the orifice of the canal, and then running out from that we cut a groove in the end of the root from the orifice of the counter-sunk portion, and then lingually we make the shoulder. That shoulder is made with a special root facer that we have designed for that purpose.

Now, the point I want to call your attention to in this root preparation is, that countersink and labial groove is made primarily for the purpose of reinforcement and strengthening the wax. If we did not make this groove by fitting the crown closely,

labially, we would have only a thin layer of wax between the crown and the end of the root, which would easily be distorted if it were a wax that was tough enough to let go, and if we employ a wax that was sufficiently rigid that it would not bend, we usually find them so friable and brittle that we have difficulty in getting this floor sufficiently thin that we can obscure the joint, and yet secure an accurate fitting between the base of the crown and the end of the root so that this groove is put there primarily in order to bring a rib out from this wax, a reinforcement, so that we have a reinforced bulk of wax around our dowel for the attachment of the wax. If we did not counter-sink this, at this point our dowel, passing through a thin disc of wax would not have as secure a hold on the pin. Of course, subsequently, when the crown is finished it affords additional strength and a more positive seating of the crown. This shoulder then, as I say, is made by means of a special root facer that I have devised for this purpose, which is a flexible guard pin with a large hole. It acts exactly as a half band would, with the exception of being very much more rigid and much easier of construction than would be the half band, with the additional advantage of a perfect peripheral alignment. A band is always objectionable, for the reason that wherever we have a band we are liable to have peridental irritation, so that in all of our crown and inlay construction it is better to have peripheral continuity with the surface of the tooth, wherever it is possible, so that with this construction then, we avoid the band, that is, we have peripheral continuity of the root, crown and metal without any overlapping of the band, that is, as there would be in the case of the band. To my mind, this makes an ideal form of root preparation for the cast base crown. This would be impracticable for the swaged base, but where we are going to employ the cast base it is just as easily adapted to this form of root preparation as any other, and if anything easier, because of the irregularities. These irregular surfaces, this counter-sunk portion and this shoulder, and this groove all afford means of irregular surfaces, which hold and maintain the form of the wax better than if it were in one sheet of wax between the base of the crown and the end of the root, so that in reality it is advantageous when used in connection with the cast base.

Now, the technique of construction is, after you have the root prepared in this way, I would use a radio-platinum wire, of course selecting the size that is necessary, but for these attachable cast crowns about 13 gauge wire is the size most suitable, and fits the hole in the crown in most of these teeth better, and then the portion that extends into the canal may be dressed down to any size desirable, and then run through the die plate and threaded throughout its entire length. Then with the cone of our cast inlay wax we heat this wire hot enough so that it may be forced through this cone and in that way we have the wax and the pin

united thoroughly, by heating it so that it melts its way through the wax and unites thoroughly with the pin so that there is no liability of it becoming loose or displaced while handling it subsequently. So that then, with this cone of wax around the dowel we leave enough of the pin projecting, we force this down into the canal so that our crown then acts as a plunger. We have fitted the crown approximately as closely as possible so that the joint is beneath the free margin of the gum, and then we cut away this lingual portion of the crown. The question is often asked, and the idea seems to prevail in the minds of many that the cutting away of this lingual extension is an element of weakness to the crown whereas, as a matter of fact, it is an element of strength, it strengthens the crown, because in the porcelain we frequently find this lingual extension, especially if we have to grind down and make it rather thin, this attenuated projection of the porcelain is liable to break off. That is frequently found in cases that have been placed in the mouth; we frequently see this chip away. By cutting that away we leave a surface here for excess wax, to which we can attach our sprue subsequently and strengthen the case by means of cutting that away. Then we use the crown as a plunger, forcing this wax down into position. Now, it is not wise to attempt to do this by forcing the wax and seating it all at one time. We should force it to place, remove it, trim off the excess, warm it over the flame and re-seat it and adjust it, and re-adjust it several times, not attempting to seat it entirely at one time. That is my experience, and it teaches me that it is better to make repeated fittings rather than force it to place at once, and by continued removal of the case you will be able to work this down until you get close alignment. If we attempt to seat the crown with a mass of wax, with a considerable excess, there is a tendency when this excess wax forces out, when it comes in contact with the margins of the gum (the root should be trimmed below the gum), for it to curl up away from our margin so that we do not get as definite and as positive marginal impressions as we do if we continue by repeated fittings, and after we have reduced it down and got the crown seated we take a small round instrument and burnish the surface, and if the wax gets hard with the temperature of the body it will be necessary to throw a little warm water over the surface, and then with this round instrument burnish the wax into perfect alignment with the end of the root and by this means you can obtain definitely and positively a perfect adaptation and a perfect peripheral continuity, which is so necessary in the successfully constructed crown.

Now I believe, Mr. President, that that is all that is necessary to explain in this connection and before taking my seat, I want to thank you again for your kind treatment, for your cordial entertainment, and I want to say to you that while I have visited a great many dental societies in this country and our own, it has

never been my experience to attend a meeting where there has been that spirit of good-fellowship and that cordiality, and that apparent friendly feeling between the members and the interest that seems to predominate in the minds of all, in their society work. I understand that your organization or re-organization is only two years old; and to me last night at the banquet. (Laughter). I was sober then, and am sober now. While I may not have been in a position to express my mind last night as clearly as I feel now, I was sufficiently in possession of my right mind to realize that it was an exceptional meeting, and exceptional occasion for a city as young and of the size of Winnipeg, and I want to say to you, as I said, or as I intended to say, that it has never been my experience to have attended a meeting where the interest and the manner in which you have conducted your meeting has been as full of life as this meeting has been, and I assure you that I have enjoyed it and am glad I came and I assure you that it will not be my last visit. (Hear! Hear!) Probably at your big meeting in 1912 or 1914, we will come up in a body. One or two of us is not enough. I think, I can bring up enough fellows to hold you down. You are too much for me alone, so that the next time I come, I am going to get a lot of those good fellows to come along. We have a lot of good fellows in Chicago. We have some Canadians down there and we are proud of the Canadians; we are proud of our brothers and sisters across the line, and we want to get you down with us sometime. We have you individually, frequently, but we want to know more of you and we want to get closer together by the interchange of ideas and by this unionism we all grow, we are all better for it and it is a pleasure to me to meet with you and I hope it will be often. I thank you. (Applause).

DR. K. C. CAMPBELL: Mr. Chairman, I would like to make a motion. We all know how greatly in demand Dr. Roach's services have been in the past, throughout the country, and we feel especially fortunate in having had him come here on this occasion, and I feel that I am hardly capable of expressing the fine appreciation of Dr. Roach's services to us at this meeting. I heard Dr. Roach say last night, and I think, when he said it he was clothed and in his right mind, that he was a good Canadian, and I would like to have Dr. Roach when he returns to Chicago say, that he was a Canadian while he was on this side of the line, anyway.

We hope that Dr. Roach will, as he has promised to us, return in 1914 to the meeting, which is sure to be here, and I take, therefore, very much pleasure, Mr. Chairman, in moving a hearty vote of thanks to Dr. Roach, and I should also like to add to that motion that we take much pleasure in making Dr. Roach an honorary member of this Society.

DR. MATHISON seconded the motion, which was carried unanimously.

THE CHAIRMAN: Dr. Roach, it is my privilege and I think, it is quite a privilege, too—I know and appreciate the fact that you have given up a whole lot to come up here. You have said you have liked to be here and I hope you have. If you come again I think I can promise we will do a little better for you.

I should like, as President of this Society, to extend the vote of thanks of the members here for your services at this meeting and make you an honorary member of this Society, which you think so much of.

DR. ROACH: Mr. President, and members of the Society, I want to acknowledge this honor and assure you of my appreciation of it and I hope I shall be worthy of the honor.

DR. BUSH: Mr. President, Dr. Roach comes from the flourishing suburb of Winnipeg, Chicago. As he said last night, there are other great men there besides himself. I had thought that the Program Committee had a heavy task before them, when we had had C. N. Johnson here, and last year we had Dr. Goslee, I wondered if they were going to be able to make good. I must compliment the Program Committee in having got so grand a man as Dr. Roach. At the same time, I would like to move that he be asked to take the greetings of this Society to the other great men who have been with us.

DR. DOYLE seconded this motion, which was carried unanimously.

DEAD PULPS AND THEIR SEQUELAE.

DR. D. NORMAN ROSS, WINNIPEG, MAN.

Read before the Canadian and Ontario Dental Associations, May 31, June 1 and 2, 1910.

Mr. President and Gentlemen: In presenting this paper I have not aspired to any claim on originality, neither have I attempted to give any account of the research on the subject. In the matter of treatment of the various conditions which occur I deem it enough to mention which, in my opinion, is the best and most approved form of treatment, while the details of that and many others can be learned by consulting any recent text-book on the subject. In all probability there will be much said concerning the recognized treatments in the discussion which will follow this paper. Probably the most common conditions which dentists are called upon to treat are those which have, as a primary cause, the death of the pulp, which followed by apical infection gives rise to an important series of sequelæ. Truly it can be properly claimed that this is one of the most important problems in the entire field of dentistry.

From a pathological standpoint, canals containing non-vital

pulps, or those in which the pulps are absent, may be divided into two large classes; the aseptic, being those which are as yet free from micro-organisms, and the septic, those containing pulps or their remnants in which micro-organisms have developed.

The aseptic cases include those that have been intentionally devitalized by any of the various methods used, providing that the necessary aseptic precautions have been exercised. To this class of cases also belongs that condition known as "dry gangrene." In the latter instance the pulp appears as a dry, tough, shrivelled up mass, partially occupying the pulp chamber and canals. Such a condition obtains after traumatic death of the pulp without exposure and may result from blows, biting thread, chewing ice, rapid wedging and regulating or non-fixation after regulation. Frequently dry gangrene may follow an attempt of the conservative treatment of the exposed pulp by capping with zinc oxychlorid or the application of tannifying substances, such as alum, formaldehyde or tanning to the stumps of pulps. The tooth is found to lose some of its translucency, but is not much changed in color. It fails to respond to tests of heat, cold, or electricity, and drilling is painless. On opening the canal neither pus nor odour is present.

In the septic cases the pulp becomes invaded by many of the numerous micro-organisms which are usually present in the mouth and it will present a variety of conditions according to the depth of invasion of the organisms. They range from superficial ulceration of the pulp to its disorganization through putrefaction resulting in moist gangrene. In this latter stage the *Bacillus Gangrene Pulpa* is the most important organism and three types of cases may be observed. First, in teeth apparently sound, the bacteria entering either by way of the blood or through the dentinal tubules from cracks in the enamel. Second, where the pulp has died after the tooth has been filled but the canals not treated, or where the canals have been partly filled, the bacteria gaining entrance through crevices about the crown and root fillings. Third, teeth having open cavities and canals, the infection coming from the mouth,

The dead or partially dead pulp forms an ideal culture medium for the development of the saprophytic bacteria which have entered it and a serial decomposition occurs similar to putrefaction in other localities, until the contents of the canal and tubules are completely destroyed. In the earlier stage of the process the pulp resembles a yellowish mass of sloughing tissue which can easily be removed, while later it is darker and finally may be rendered liquid, or the canal may appear dry.

The tooth appears much darker in color and does not respond to heat, cold, or electricity. There is no pain complained of, but a bad taste in the mouth, due to the escape of gases through the tooth, may be much in evidence. On drilling a disagreeable

odour is noticed, which is increased on opening into the canal.

Concerning the treatment of the above conditions it may be said that dentists should be prepared to treat any condition of a tooth with a non-vital pulp which is presented, but above all, it should be their duty to make sure that from no fault of their's should infection obtain in the aseptic cases, or extension of the infection beyond the pulp canal in the septic types be permitted.

In aseptic cases the rubber dam should be applied to the tooth and the crown of the tooth disinfected. The canal is then opened and the contents removed (aseptically), when the canal is dried, rendering it ready for immediate filling.

In septic cases the canals must be disinfected and the contents removed when the root is ready for filling. To facilitate the removal of the canal contents and at the same time render the canal aseptic, a choice may be made of either the use of tricresol and formalin, sodium dioxide, or the Callahan method. In small canals which necessitate enlargement, the latter method is the ideal *modus operandi*. Instead of filling the canals at once there should be sealed in them tricresol two parts, formalin one part, for three days, at the end of which time the canals are ready to receive their permanent filling.

There is a great difference of opinion regarding the proper root filling. In this respect zinc oxychlorid holds first place, but is objected to on account of its irritating action on the vital tissues at the apex. Gutta-percha ranks second in quality. Probably the combination of these two materials in the following manner is most satisfactory. Moisten the dried canal with antiseptic chlora-percha or an eucalyptol solution of gutta-percha and fill the apical two-thirds of the canal with antiseptic gutta-percha in the form of a cone; the remaining portion of the canal and pulp chamber is to be filled with oxychlorid of zinc.

The sequelæ of dead pulps may be advantageously considered under two heads—local, those appearing in and around the mouth, and general, those occurring in other parts of the system. Of these the former, from the dentist's standpoint, is of the greater importance, since it is these conditions which present themselves for our diagnosis and treatment.

Providing the canals have been successfully treated and filled, all those cases of the aseptic type, together with those of the septic variety in which the infection has not been permitted to extend beyond the pulp canals, present two noteworthy sequelæ. These consist of a lessened strength and durability of the tooth, and a varied discoloration. The change in color is due to the action of hydrogen sulphide on the iron of the hæmoglobin of the broken down, red blood corpuscles, producing a pigment which occupies the tubules of the tooth. The treatment consists of attacking the pigment molecule with such agents as chlorine, hy-

drogen dioxide, sodium dioxide, and sulphurous acid, which destroy its chemical composition, rendering it colorless.

The most serious conditions may obtain after the infection has involved the tissues external to the pulp canals. At first the pericementum becomes the seat of a subacute or acute inflammation. On account of the tissues being enclosed by bony walls the pain may be excessive. The tooth becomes extremely sensitive to touch and percussion; it is elongated, while the gums over the apex may be markedly injected.

The principal micro-organisms found, consist of staphylococci, streptococci and the diplococci pneumonae. The last named has been present in seven out of ten cases examined.

It is found that infections caused by any two or more of the above organisms are much more severe in their character than is the case in a single infection. The staphylococci cause a circumscribed infection, while that of the streptococci has a tendency to spread along the fascia.

In any case where the pericementum remains the seat of active inflammation for from one to three days, there is considerable death of cellular elements in the inflammatory effusion and pus forms, giving rise to our next sequelæ, that of alveolar abscess.

The predisposing causes of alveolar abscess may be said to be any condition which reduces the vital resistance of the individual and thereby favors the development and extension of pyogenic processes. Among these conditions may be mentioned syphilis, tuberculosis, inherited conditions indefinitely classified as strumous and acquired cachexia. The exciting causes may be found in the pyogenic cocci, which have gained entrance to the periapical tissues through the foramen of a root. The parts are rendered susceptible to abscess formation by the growth of organisms yielding ptomaines and other waste products, which enfeeble the cellular elements. Pus is formed by cellular destruction, including leucocytes and may discharge from the affected parts through one of many channels. Ordinarily the course is the one of least resistance, but may take place in any direction, being often influenced by the force of gravity. It may discharge through the root canal, beside the neck of the tooth, into the antrum or floor of the nasal cavity, or more commonly through the alveolar plate and gum appearing by a small fistulous opening nearly over the apex of the affected root. Occasionally the opening may be on the face, or in case of the lower jaw the pus may burrow through the body of the bone and appear on the chin or neck. More infrequently the pus, instead of discharging externally, forms a cystic tumor in the bone, or may burrow into the alveolus, producing caries of the bone. Oftentimes the pus during its course causes the periosteum to be lifted up sufficiently to cause more or less necrosis. In syphilitic subjects this often amounts to an extensive involvement.

The tooth is sore to bite on and gives a dull note on percussion, while a fistula from which pus may be obtained by pressure is generally evident. The clinical history often aids materially in making the diagnosis.

The treatment consists of rational therapeutic attention. Pus must be destroyed, the tract of the fistula and abscess cavity thoroughly cleansed and growth of healthy granulation tissue encouraged. In caries, necrosis and cysts the usual operative procedures are put into practice.

The sequelæ classed as general, comes probably more properly under the care of the medical profession, and arise from the septic cases only. I think you will agree with me when I say that the medical profession fails frequently to realize that mouth conditions often stand in a causative relation to remote complications. This is not difficult of comprehension when one considers what the results might be to the system generally from the continual swallowing and absorption of pus and its toxins from septic conditions following the death of the pulp. The simple fact of these teeth being painful often causes, especially in children, the readily formed habit of bolting the food, as this is the way of least pain. The poorly masticated food is hurried into the stomach, which becomes overtaxed, its function becomes greatly impaired, giving rise to a general disturbance throughout the digestive tract. A large proportion of the food never reaches that stage of digestion necessary for absorption, so that there naturally follows more or less mal-nutrition which, during development, is of grave importance. As eminent authority as Sir Frederick Treves, who was surgeon to our late King, states that such portions of undigested food becomes lodged in the coecum and by fermentation there, forms one of the etiological factors in appendicitis. A considerable amount of pus from abscessed teeth is unavoidably swallowed, causing serious disturbances to the organs of digestion. Many stomach disorders can be directly traced to such a source. Miller says, that as much attention should be paid to the mouth in cases of digestive troubles as to the diseased stomach. Notable among such disorders may be mentioned dyspepsia, gastric ulcer, chronic and septic gastritis. The altered function of the stomach and the impaired bacteriacidal action of the gastric juice permits a more or less quantity of pus to pass into the duodenum and small intestines. The resulting irritation gives rise to a marked and persistent diarrhoea. When the pulp is dead and the pericementum is invaded, there is no doubt of general infection from this source. More or less septic intoxication is a common attendant upon severe septic apical pericementitis and septicemia, accompanied by inflammation of the neighboring lymphatic glands, is remarkably frequent.

Pyogenic organisms, gaining entrance to the blood current from the local source of infection, establish pus formation in

other parts of the system, as an osteomyetitis, or in the lungs, or the brain, including its membranes.

Probably one of the most serious diseases which is believed to have a direct bearing on the absorption of pus in the mouth is pernicious anemia. William Hunter claims that it is a very important cause of the disease.

Occasionally pneumonia may be traced to an abscessed tooth as a primary cause, the exciting cause, in all probability, being the diplococci pneumonae which has travelled from the affected tooth by way of the blood to the lungs. Such cases, on becoming septic, usually have a rapid and fatal termination.

Neuralgia, nervous disorders, rheumatism, endo-carditis and insanity very frequently have as one of their etiological factors the presence of abscessed teeth.

The treatment of the general sequelae should be by the co-operation of the dual professions, medicine and dentistry, to attain the fullest benefits possible.

DISCUSSION.

DR. A. V. LESTER, HAMILTON, ONT.

Mr. President, Ladies and Gentlemen: Dr. Ross's paper reached me Friday, with a note enclosed to return as soon as possible, so that it could be sent on to Dr. Berwick. It was returned on Saturday, and in consequence, I did not have as much time as I would have liked.

In opening the discussion I would first like to compliment the essayist on the excellence of his paper. Dr. Ross stated facts recognized by the profession as standard, and as he states, has nothing original and in consequence he has left little room for discussion. There is probably nothing in dentistry to-day so important as the treatment of dead pulps, and certainly nothing which taxes the skill and patience of the dentist with sometimes indifferent success and little remuneration.

Dr. Ross in his paper says, to facilitate the removal of the canal contents and at the same time render the canal aseptic, a choice may be made of formalin and tricresol, NA 2, O2, or the Callahan method. Does he mean at the first sitting? If so, I do not agree with him, for the reason that we are liable to force infectious matter through the apices of the root. To my mind the first sitting should consist of nothing but sealing formalin and tricresol in the pulp chamber, to sterilize the contents; then at the second sitting, remove the contents of the pulp chamber and canal and proceed with any of the aforesaid treatments.

In filling root canals, the essayist suggests as an ideal filling, to fill the first two-thirds with gutta-percha and the last third with oxycholoridi of zinc. If the first two-thirds are hermetically sealed what value has chloride of zinc.

For filling these canals, I would like to suggest the following method which has given good results; fit a gutta-percha point in the canal of the tooth and remove. Mix formalin and tricresol with oxyphosphate powder to a creamy consistency. Work this down the canal. Then place your gutta-percha point in the canal, and seal with a warm instrument. This method you will find worthy of a trial.

In teeth which are aseptic, those which have been recently devitalized, the essayist's method that they should be filled immediately, providing the hemorrhage can be controlled, is ideal, as you will never get them in a more aseptic condition.

The general sequelæ arising from dead pulps are very important and every one will agree with Dr. Ross that they play an important part in the health of the individual. In conversation with a medical man not long ago, he told me that in every case of rheumatism that presented, he first examined the mouth to see that the teeth were in good condition. The famous Dr. Ostler is responsible for the statement, that decayed teeth has caused more deterioration in men than alcohol.

Dr. Ross says, the treatment of the general sequelæ should be by the co-operation of the dual professions, medicine and dentistry, to attain the fullest benefits possible. In another paragraph he says, "I think you will agree with me when I say the medical profession fail frequently to realize that mouth conditions stand in a caustive relation to remote complications." Gentlemen, the cure of most any disease is to find the cause and remove it; then if we can cure these conditions, why work in conjunction with the physician, and let him take the glory, when the cure rests in our hands.

DR. BERWICK: Dr. Lester in opening his remarks said his time was somewhat limited. I received Dr. Ross's paper late yesterday before leaving Montreal, and I really had not had a chance to look at it till I got on the train last evening. I must apologize to the meeting for not having a proper discussion of this paper prepared. I would like to congratulate the essayist on his very carefully compiled paper, which contains very many useful facts, and I will only attempt to touch on two or three minor points in the paper, which may possibly be of interest to some. He classifies the two classes, aseptic and septic, and in this connection it is really the septic cases in which we are chiefly interested. I just want to speak briefly concerning the treatment of these cases. I think we have all found since the use of formaldehyde was brought to our attention that we have achieved results which we were unable to achieve before. I agree with Dr. Lester in his statement that no attempt should be made to remove the contents of the pulp canals at the first sitting. I think, attempts along this line are responsible for a great many aggravated cases that we have to deal with. In connection with this treatment the regu-

lar recognized treatment has been that prescribed by Dr. Buckley of formaldehyde and creosol. Recently I had called to my attention the preparation which is known as formacoid. Perhaps, a great many of you are familiar with it. It is solidified formaldehyde; it is really a very much safer and more convenient method of treating these cases than with the liquid preparation. These are made up in the form of pellets containing 1-12th of a grain; they are very small in size, about an eighth of an inch long and about a twentieth of an inch in diameter. My method, since this has been brought to my attention, is, at the first sitting to open up the teeth and wash out the pulp chamber as well as possible, insert one of these pellets in the pulp chamber, seal it tightly and leave it for three days, and the results I have achieved are little short of marvellous to me, and I have given it some very severe tests recently with good success. Then at the subsequent sitting remove the contents of the canal and proceed in the ordinary way.

Now, the essayist here laid special emphasis on the necessity of placing the rubber dam in all aseptic cases. We will all agree with him in that, but I would like equally to emphasize the necessity of placing the rubber dam in septic cases and sterilizing the teeth included in the rubber before proceeding with the treatment, because it is just as essential to prevent a mixed infection as to prevent infection in the other cases.

Of two or three different methods mentioned for treating root canals he mentions sodium dioxide, which we know to be chemically correct, but the difficulty in applying this treatment and the dangers arising from it are much greater than in the case of formaldehyde. I think in our cases in a great many instances in our practice we are too often looking for some royal road to success: we are always looking for some new and easy way to accomplish these results, and in my experience there is no easy way. Results are only attained from the most careful and conscientious work. We must be careful in every detail. I have seen very good results obtained from indifferent methods, simply because they were carefully and conscientiously carried out.

DR. MAGEE: I think it is a subject where a great deal of discussion can be brought to bear. The question of root filling is one that every man must judge for himself. The first speaker who got up, in speaking about root filling, wanted to know why, if the root was perfectly sealed, it should require anything at all between it and the permanent filling in the crown. There is very frequently a septic condition which will follow through the canal and sides of the root, and it is well to put something there that will exclude the bacteria that will sometimes leak in through, perhaps, faulty work or subsequent caries, undermining the filling. If you can insert oxy-chloride of zinc in the canal you may be sure no bacteria will get up that canal anyway, whatever other way it may get into the socket of the tooth. The suggestion has

been made to fill the root in one way or another. I used to be credited with saying there was only one way to do it. I have tried a whole lot of ways, and I have had success with every one of them, and after all it does not make very much difference what you fill it with so long as you get the root aseptic and seal it up that way,

The treatment of some of the sequences of faulty root filling, such as abscess, or perhaps chronic abscess that cannot be cured—except by curetting the end of the root and sometimes by amputation. It is not a very difficult thing to amputate the root of one of the anterior teeth, and it only becomes a troublesome thing when it gets to the molar region, except in the lower bicuspid region. Sometimes it is worth while to subject the patient to a rather trying operation in order to save the tooth. You may thus save the tooth, perhaps, in the mouth of a singer or some person who cannot very well spare one of the anterior teeth.

DR. BUSH, WINNIPEG: The Bible says that a prophet is not without honor except in his own country, and it is with some diffidence I rise to speak to this paper, because my good friend Dr. Ross is a member of my own City, and a member of our own Association and the Club to which I belong, therefore I will not offer any criticisms of the paper so ably prepared by Dr. Ross; I will leave it with those who do not come from his own country. At the same time, I may say, I am proud to have a man from our own City of Winnipeg read a paper such as Dr. Ross has. One of the principal reasons for rising is, that a gentleman said: that the dangers in connection with sodium dioxide were greater than its advantages. Of course I can see right there at my back my Winnipeg friends smiling when I speak about sodium dioxide. I am a devoted adherent to that drug, I have used it for eight years, and I like it better now than I did seven or eight years ago. Of course it must be used with a reasonable amount of care, the same as every other method, but I have had such good results and so few bad ones, that I feel justified in my adherence to it till I find something better.

The method of sealing something in the pulp chamber is no doubt a good one. It must be, coming from so eminent a man as Dr. Buckley. At the same time, sir, in your address to-day you spoke of the difficulty of destroying micro-organisms so that they would not do further damage, and for myself, I like to go on the surgical principle of removing a septic condition as quickly as possible, and when a pulp chamber is well opened I can see very little use in the majority of cases of sealing in anything in the hope that it will successfully destroy, to the apex and maybe a little beyond it, all micro-organisms in that canal chamber. It may do so. It perhaps does in a number of cases, but I would rather see them out of it. My method is to use the sodium dioxide, get it in the powder and place a little on the slab perfectly fresh,

and when the pulp chamber is perfectly open, preferably with a large excavator to avoid getting pressure on the pulp, I place a little sodium dioxide in the pulp chamber. I make no attempt to get into the canal. I leave it there for a short time and it will creep up the canal. Of course there will be great danger if you try to force it up at once, just the same as you would get very serious results from an anti-septic, such as oxygen. Then on the second application go a little further, and in a few minutes you may go further still, and in 99 cases out of 100 your pulp will come out complete. Flood the cavity with hot water, wash it out thoroughly, and you have cleaned the root canal. This method I have practised for some eight years, and wish you gentlemen to try it. Sodium dioxide is easily obtained now, it was not so easily obtained when I first started.

DR. D. D. ROSS: Mr. Chairman, I don't intend to discuss the subject. I would like to ask some of these gentlemen a question or two with regard to their treatment. When a tooth is brought to the dentist with a putrescent condition, as a rule it is sore, and it has always been a puzzle to me what was the cause of that soreness. I usually find when a canal or pulp chamber is opened and the pulp dead, there is little or no soreness; it is usually when it is closed up tight that we have soreness by percussion. Some of those gentlemen who have spoken, claim to open that pulp chamber and seal it up again. I have tried that, but I always find it gets worse instead of better. I have tried by opening that pulp chamber and leaving it open until the soreness passes away then the after treatment goes on very nicely, but as sure as I seal the cavity up while the tooth is sore, it still gets sorer. My theory is that the gases forming from the dead pulp are really the cause of the soreness at the end of the root. There is an accumulating pressure. When the pulp chamber is open, those gases are allowed to escape, and the tooth resumes its normal condition, and then you are in a position to go ahead and treat the tooth. I use treatment very much as some of the other gentlemen have spoken of, so I would like to ask them do they in every case, when they seal up that pulp chamber, and find that the soreness is relieved after sealing, and being kept sealed with formaldehyde or whatever else it be?

DR. BERWICK: I think the gentleman from Winnipeg misunderstood me. He quoted me as saying that the dangers of sodium dioxide were greater than the advantages. I said the danger of using it is so much greater in comparison with the other treatment, that I did not consider it advisable to do so, and I consider the formaldehyde a very much safer and simpler treatment. To the last speaker I would say that I seal that treatment in every such pulp that comes to my attention, and I have very little trouble with soreness afterwards. Only a few days ago I had a very typical case of a right upper molar, with reference

to which the patient had been complaining of soreness for three or four days. I opened it up, and there was decided evidence of pus in the pulp chamber. I washed that out and placed a pellet of formacoid in it and sealed it up tightly. He came back in three days and he had had no pain, and all trace of odor had disappeared, and the tooth was in a comparatively healthy state. At that sitting I removed the contents from the canals, and followed the ordinary treatment with a modified form of creosol. At the end of three days the canals were in a perfectly aseptic condition. I do that in every case and very seldom have a failure.

DR. WEBSTER: Will Dr. Berwick make it clear what he uses when he seals? It is quite evident he believes that no soreness will continue if he seals formaldehyde. He did not tell us he would seal creosote or carbolic acid.

DR. BERWICK: I certainly would not seal anything in there that would not have the effect of transferring those noxious contents of the root mass into harmless ingredients. That is, formaldehyde is the only drug I know of that can be used in that way.

DR. TREWIN: Gentlemen, I know Dr. Webster is very tired after a hard day, but I would like to hear him give us five minutes, because I know he has made a special study of this.

DR. ALLEN: I would like Dr. Webster, while he is on his feet, to explain to us how it is that those roots of molars which cannot be filled, and possibly cannot be treated, remain all right, aseptic and in good condition, and are never filled or never treated?

DR. WEBSTER: Gentlemen, I have nothing prepared to present at the present time. I have not been thinking of this matter in this direction at all. I should like very much to have discussed this paper, but not having anything definite, cut and dried and ready to give forth, I do not wish to undertake very much. I want to say though, if it is your pleasure, a few things. In the first place, we are all aware of the fact that it is impossible to remove all the contents of many canals. Most dentists can get most of the contents out of the large straight root canals, but few dentists can get all the contents out of fine crooked canals. If that be true, and I am sure you will agree with me, then we must take some method of treatment which will make the possibility of infection in those small root canals as remote as possible. Fortunately, there is not very much contained in fine canals to cause infection. Micro-organisms require food upon which to grow. If there is not much in the canal, then there is not likely much chance of infection. The fewer organisms, the more easily they are controlled by nature's processes at the end of the root. So that we do not fear these very fine canals as much as we would a large canal. The contents of a large canal can readily be removed. Now, let me point to the question of filling. It is just as impossible to fill those fine canals as it is to take the pulp out

of them. We are not much more successful in filling than we are in removing the pulp. If we can remove the pulp we can fill readily. If we desire to put something into those canals from which we have not removed the pulp, it must be something fluid. What are the fluids which we may use? We hear of formaldehyde, which is an irritant, a very great irritant in some cases. Then would we take the chances of putting some formaldehyde into a pulp chamber of the lower first or second molar, putting gutta-percha above, or vulcanite, and giving it a squeeze in order to force the formaldehyde into the ends of those roots? I hardly think so. We must depend upon the permeation of the formaldehyde from the solution. I doubt very much whether it is wise to use formaldehyde, as is the common practice now, for filling these canals; better use some other preparation with a very small quantity of formaldehyde if you choose. Perhaps, there is nothing better as a preservative than creosote, or alum, or tannic acid. Those are the main stand-bys. Now, in whatever way you can, work those into the fine canals, and then trust for the rest. You know you have not removed the contents of the canal, but it is very small. You know you have squeezed into it a disinfectant as far as possible, and you have sealed it over with oxo-chloride of zinc.

Again, one gentleman says, if you have hermetically sealed the apex, why use oxoy-chloride of zinc to cover the sealing. I would say so, too. It is a waste of time, if you have sealed the end of the root. But, you can't do it with gutta-percha, that is the point. Then, let us cover these over with oxoy-chloride, to insure that the root canal may not become infected from the mouth, not necessarily through the general circulation, because many of our fillings leak, and the root canals become infected from the tooth.

Now, coming to the question of root canal fillings, I would suggest to use that root canal filling, which the particular case in hand demands. I do not wish to go further into the discussion of this subject, unless there is some question to be asked, because, I have not prepared anything.

DR. TREWIN: I understood you to say that you did not fear the small canals as much as the large ones, because they did not contain as many bacteria. Why is it that you often find an abscess on the buccal surface of a molar and not on the lingual?

DR. WEBSTER: When you get to the first molar, for example, say to the patient this was devitalized by your dentist two years ago, or seven years ago, or fifteen years ago, as the case may be. Who did it? Dr. so and so. You judge he has removed all the pulp from the lingual root, and he has tried pretty hard to get it out of the buccal. The chances are, if there is infection here it is in the buccal root. In another case who did it? Dr. so and so. If there is infection here it is in the lingual root; he

didn't try to get the pulp out; he is a mummifier. The reason mostly why infection is often on the buccal side would be because the root canal on the lingual side had been filled and treated properly, while on the buccal side it has not been so. Another reason, the buccal plate is much thinner than the lingual plate, and in many cases the apex is not covered by bone at all, and if there is pressure at all from the lingual side crossing over through the crown the buccal side will be the most easily broken through, and then as soon as that happens the lingual side will be relieved.

DR. STEVENSON, MONTREAL: I would like to add one word to the very interesting discussion, and it might be this, that while we none of us can drill to the ends of the fine buccal roots, a great deal may be done with a little persistence and care with the very fine instruments that are now supplied us, to get into those canals a considerable distance. I know such celebrated authorities as Miller spent many years in trying to find an efficient mummifier, but we cannot soothe our conscience by using mummifiers until we have tried every means to empty those canals.

DR. WEBSTER: I am very glad Dr. Stevenson has seen fit to make these remarks, because as he began I was afraid some of you might think I was not intending to impress you with the idea that these root canals had to be opened up in every case that it is possible to do so. There isn't any doubt on that point. The less dead, or organic matter in any root canal, or in the body in any place, the less chance of infection.

DR. WALDRON: Following out the line suggested by our President with regard to avoiding irritation and compressing the remedy through the end of the root canal, I have been studying considerably lately to find remedies that would be most adaptable. On account of solubility, many of the remedies we have been using, such as the essential oils, if they meet with the moisture of the root, will form a gum, and I have been using for a long while now as a dressing, alcohol and camphor. Alcohol will mix with nearly everything, apparently. (Laughter). I have met with greater success from the use of a dressing of a saturated solution of camphor and alcohol than from anything else.

DR. WHITSLAR: I have enjoyed the reading of this paper very much, and I wish to say it is the most logical paper I have heard in a long time on this subject. It is certainly very fine, and I want to compliment the author. I was just about to rise, when my good friend arose, to speak of alcohol myself, to say it is one of the finest antiseptics I have ever used in the root canal after all other things have been used, as a final treatment. It has not only the power of antisepsis, but it has also the power of tanning the contents of the tubuli. It is certainly a good remedy.

DR. CLARKSON: I did not have the pleasure of hearing this paper, but in speaking of medicines that should be used in root

canals, there are three I think, ought to be mentioned that are worth further study. I have been using them all. One is Glutoil, which is an albuminoid of formaldehyde, possessing the advantage of not being as irritating as formaldehyde. I think, if formaldehyde is used with judgment a great deal of the irritation that is complained of can be avoided, but with the use of Glutoil that danger is greatly reduced. It is used in general surgery for dressing wounds; it is placed upon the surface of the skin; and it is recommended by those who have had experience with it, as being a very good non-irritating antiseptic. Then there is a second one, ordinary Balsam of Peru, which can be forced up some distance into the root canal and exercises considerable antiseptic power, owing to the presence of benzoic acid; it also contains resinous qualities which are precipitated when they come into contact with moisture; and the third one that I think ought to be mentioned is ferroldehyde, a solid which can be introduced into the root canals, and which breaks down more gradually, giving a prolonged action of formaldehyde, but the irritant properties are not so pronounced as in the case of formaldehyde.

DR. BARBOUR: May I state a case which may emphasize what Dr. Magee has said regarding root preparation? Ten years ago, a young lady who was leaving four days afterwards for Europe unexpectedly, called upon me, and I found in a central an infected pulp which had not given trouble for a number of years. I found myself in the position where it was necessary to do something. I sterilized it immediately and filled it. That was on Friday, and on Sunday I was not surprised to hear from her, as she was beginning to suffer very severely. I asked her to come to the office, and I opened into the alveolus, trimmed to some degree the end of that root, and promised her she would have relief in an hour or two, that she would have very little swelling. I found on Monday morning it all came true. On Monday when she came she again complained of a very slight swelling and very little pain. I have practised that for a number of years and found it very effective. As we are all apt to come into contact with such cases, I would like to emphasize what Dr. Magee has said, to show how you may sometimes escape from a very unpleasant situation.

DR. ROSS: Closing. Mr. President and Gentlemen, I am sure I have enjoyed this discussion very much, and I may say in defence of the brief mention of the treatment in my paper that I considered in preparing this paper it might be possible to bring out a large volume of the different treatments that are being carried on. My object in bringing the treatment into my paper at all, which really did not call for treatment, was simply to bring out a lengthy discussion on the subject, and I am very glad that it has done so, because it has been a very profitable discussion. As regards Dr. Lester's and Dr. Berwick's discussion of the paper

I feel that there is not any responsibility now on my shoulders, Dr. Bush first relieving me of a great many things I was going to say about this famous use of sodium dioxide, and then Dr. Webster has said some other things with regard to infection, and the filling of the root, and I am sure our best authorities will vary a great deal. The method Dr. Webster has spoken of, is one I have followed, and I think it has found the most favor. There is one thing that has not been said in the discussion, in discussing very fine root canals, and that is the use of sulphuric acid for enlarging those root canals by the aid of reamers and burrs. I believe a great deal of help in filling those small canals, or in getting over future difficulties that might arise, is to be obtained by using sulphuric acid and enlarging the canal, and then treating it as you would, had the canal been larger.

REPORT OF A CASE OF EXTREME MAL-OCCLUSION WITH DESCRIPTION OF THE MEASURES TAKEN FOR ITS RELIEF.

BY J. S. IBBOTSON, D.D.S.

Dental Surgeon to the Montreal General Hospital, Montreal.

While in adults cases of bony or fibrous ankylosis in the temporo-maxillary articulations are usually seen and treated by the general surgeon, in early life this affection with its attendant deformity and malocclusion calls for the co-operation of the dental surgeon, and in severe cases taxes to the utmost his mechanical skill and resource.

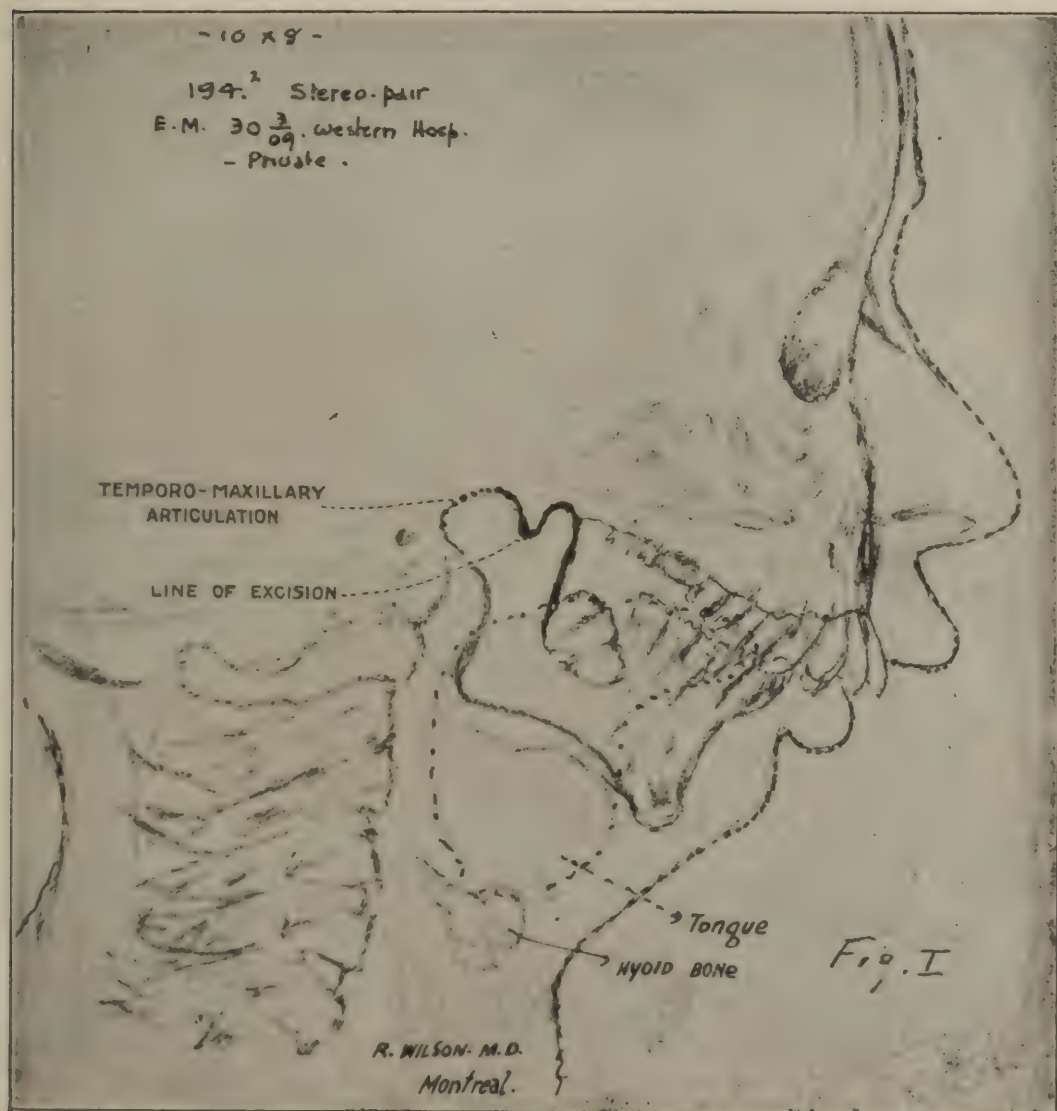
During the last twenty years I have seen, and have been called upon to treat, several cases of mal-occlusion of varying degrees resulting from articular injury or dislocation at birth, extraction of deciduous teeth, naso-pharyngeal obstruction associated with mouth breathing, and so forth. None of these cases have seemed to me especially worthy of record, but the case here reported is in many respects so unique that I feel that it well deserves publication.

Case Report.—E., a girl aged six years, was first seen by me in consultation with Dr. E. M. von Eberts, in March, 1909. The case had been under observation since June, 1904, at which time there was marked fixation and lack of development of the mandible. In June, 1905 (more radical treatment having been declined), under a general anæsthetic forcible extension of the lower jaw was attempted, with, however, but slight improvement in the range of movement. At this time the mandible showed marked angulation at the junction of the ramus and body, that is, the inner angle approximated to a right angle instead of being obtuse. The use of wooden wedges was subsequently advised but the treatment was never seriously carried out. The range of movement gradually de-

creased, and the deformity due to the backward displacement and angulation of the mandible was further exaggerated by the practice of pressing food upwards between the lower incisors and the hard palate, which resulted in the flattening of the arch.

When seen in March of the present year, the following local conditions were noted:

In profile the deformity described by the Germans as "bird-face" was most pronounced. Viewed from in front, the mucous



Tracing of Skiagraph.

cutaneous margin of the lower lip was invisible and lay behind the upper incisors. The latter were visible and prominent, and could be covered only by a special effort in drawing the upper lip down. The arch of the mandible was flattened and the lower incisors were fan-shaped in arrangement with a distinct convexity upwards,—the middle incisors being in contact with the mucous membrane of the hard palate one centimetre behind the alveolar process carrying the upper incisors. Although no ulceration of the hard palate was present, an appreciable separation of the incisors from the surface

of the palatal mucous membrane could not be effected. There was apparently complete ankylosis in the temporo-maxillary articulations. On palpation the posterior margin of the ramus could be

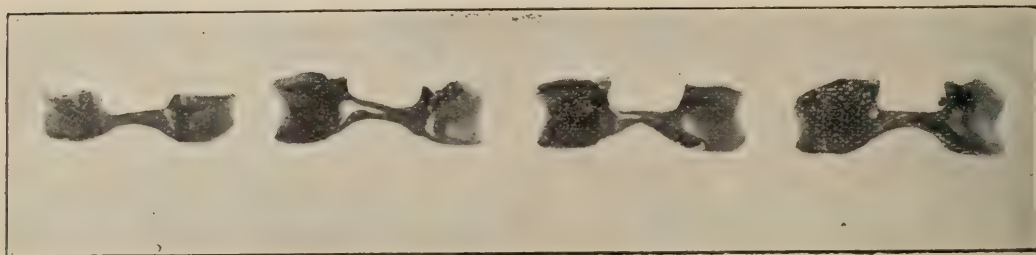


FIG. II—Front view of Interdental Splint.

felt to take a downward and backward direction towards the mastoid process of the temporal bone.

These observations were confirmed by skiagrams which, in addition, showed the secondary nuclei to be very greatly crowded, the posterior molars being directed forward instead of upward owing to the obliteration of the broad inner angle between the body and the ramus. The skiagrams further showed the condyles to be in the

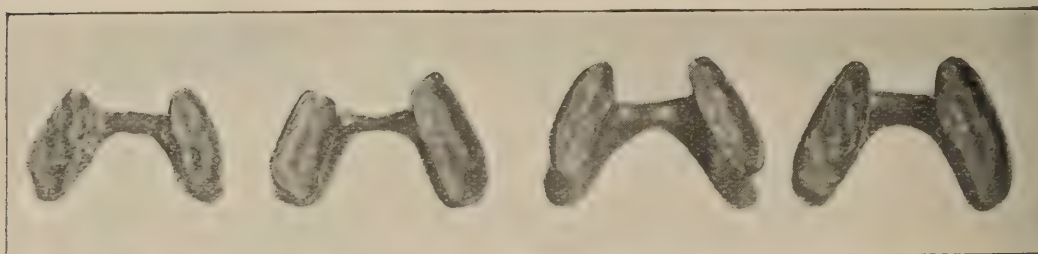


FIG. III—Interdental Splint, showing position of bridge, posterior extension of lateral mass and upper articular surface.

normal position, but very greatly broadened, the antero-posterior diameter of the neck of the condyle being as broad as the normal ramus at this age. (Figure I.) As a consequence of this deformity and fixation of the jaw, the lingual and sublingual muscles were crowded towards the spine, causing diminished respiratory space.

On April 2nd, under a general anaesthetic, the following operation was performed by Dr. von Eberts:

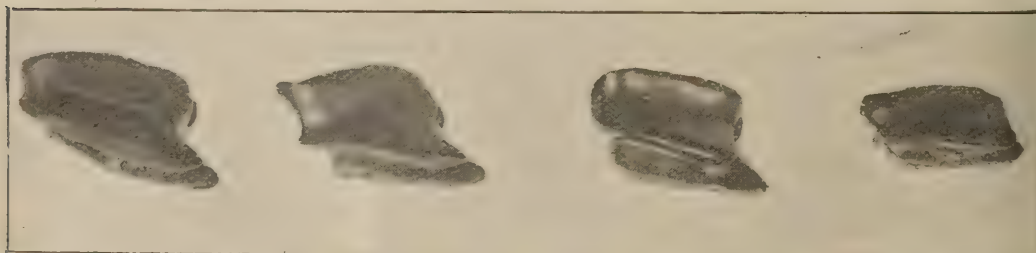


FIG. IV—Lateral view of Interdental Splint.

A vertical incision, two centimetres in length, was made about one centimetre in front of either external auditory meatus, the posterior portion of the zygomatic arch removed on both sides, and

the condyles excised. No trace of the normal articulations could be found. About one centimetre was removed on each side, which permitted the separation of the incisors of the mandible from the palate to the extent of two centimetres, together with a slight forward movement. With impression compound casts were taken of both the upper and lower jaws, and a temporary wedge inserted between the teeth on one side pending the preparation of permanent interdental splints. Forty-eight hours later a permanent splint was placed in position. This consisted of two lateral masses for in-

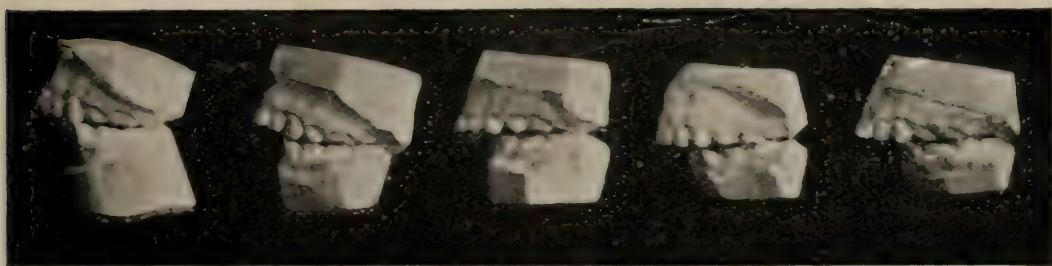


FIG. V.—Shows gradual reduction of posterior displacement of mandible (reading from right to left.)

sertion between the upper and lower dental articulations connected by a narrow body to permit of the passage of food. (Figures II and IV.) Within two weeks the first splint became quite loose and could be readily removed and reinserted by the patient. Solid food could be masticated without difficulty, and an improvement in the general condition of the child was noted. Subsequently the range of movement was gradually increased by inserting larger splints,—the series so far employed being shown in the accompanying illustrations. It should be mentioned that the last splint had been so constructed as to produce a moderate grade of pressure on the in-

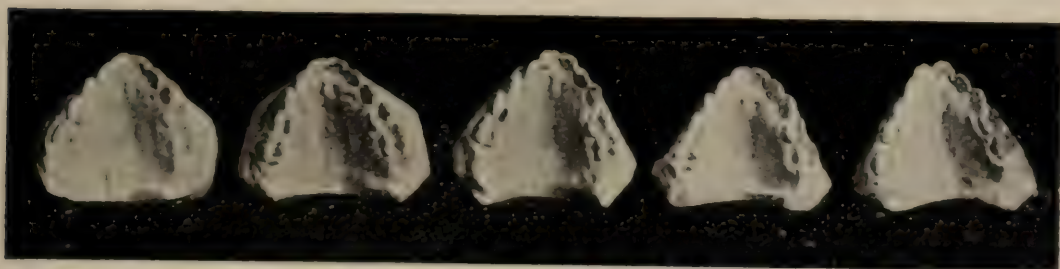


FIG. VI.—Shows gradual broadening of upper dental arch (reading from right to left.)

ner surface of the lower alveolar process in front, with a view to promoting a gradual reduction of the posterior displacement of the mandible. The pressure of the body of the splint is also designed to reduce the angulation above referred to. The child has been taught to remove the interdental splint at frequent intervals and to employ forward traction on the lower jaw by hooking the forefinger behind the arch. This practice has already aided in the reduction of the posterior displacement and of the flattening of the arch. (Figures V and VI.)

With the eruption of the second teeth (which will provide secure

anchorage for a metal interdental splint), together with the development of the jaw which may be looked for at puberty, it is anticipated that a normal profile may eventually be obtained.

HOW TO MIX ASCHER'S ARTIFICIAL ENAMEL.

Improvements on First Methods.

Some operators noticing various forms of failures abandoned use of vaseline on strip, others discontinued use of strip, while almost all operators found it necessary to complete finishing process by more or less grinding, as burnishing alone frequently did not remove all excess at margins.

The oiled strip method soon revealed the fact that vaseline contaminates the filling, preventing proper chemical action during setting process, causing a chalky instead of a flinty surface.

The value of these fillings depend very largely upon chemical action developing sufficiently while protected by the rubber and oily or varnish coating, so that saliva will have no destructive action on it. Large numbers of fillings have been utterly ruined by vaseline and the burnishing process.

The original method did not appeal to the best judgment of some operators, and either they soon abandoned it or began with the method now firmly established.

The second method differs practically at every point when compared with the first method, viz.: 1. A better mix can be used. 2. Oils are absolutely to be eliminated while filling is being inserted. 3. Celluloid strips are not to be used to shape plastic filling. 4. The burnish stroke to eliminate excess is entirely omitted.

Each of the four elements in the first method contributed its share to the weakness of the method.

Dry or Second Method.

The improved method closely resembles amalgam work, except that the material while being packed is thoroughly sticky, which necessitates a different technique.

A mix containing a high proportion of powder to liquid (about 3 to 1), that ensures density of filling, is packed with non-metallic (points) instruments so as to thoroughly cover and seal all margins, give proper contour with slight excess, when it is allowed to crystallize safely before any removal of excess attempted.

All excess is removed by grinding with vaseline or soapstone lubricated disks, strips and stones, followed by a polishing or burnishing with similarly coated celluloid disks and strips. This insures a filling completed without in the slightest degree interfering with chemical action, which should continue safely as long as protected by the rubber and after its removal until vaseline, parafine or varnish is partially removed and saliva comes in contact with surface of filling.

When introduced, the ease of placing filling, the short time required and the beautiful results when shade of filling matched tooth fairly well, promised work would become play, but as failures accumulated, the work and method lost their attractions. The newer method requires operative skill and time to complete, but permanency of results and the safety attending each step commend it to everyone.

Reviews

The Principles of Bacteriology, a practical manual for students and physicians by A. C. Abbott, M.D., Professor of Hygiene and Bacteriology, and Director of the laboratory of Hygiene, University of Pennsylvania. Eighth edition, thoroughly revised with one hundred illustrations, twenty-six of which are colored. Lea and Febiger, Philadelphia, and New York, 1909.

Abbott's principles of Bacteriology has become a **standard** work in this subject. No student can have said to have learned much of the subject without having read Abbott. The present edition has been revised and brought up-to-date. The chapter on immunity and susceptibility has been recast so as to bring it up to our present knowledge in this subject. The work is intended for the beginner, and is as safe a guide as can be found. The wide experience of the author sets at rest any question as to the value of such a work.

Proceedings of Dental Societies

REPORT OF DENTAL EXAMINATIONS OF THE R. C. D. S.

Passed junior year—Samuel George Anderson, Milton Taylor Armstrong, James Wesley Ault, Hector Charles Banford, Frederic Lerne Bass, Augustus Jasper Wolseley Brett, Rosswell Morris Burgess, Ward Cunningham, Fred. Lodge Downing, Wilbert Roy Eaman, Cameron Leroy Eaton, Wilbert Harold Gilroy, Earnest Arthur Higley, Leslie Koeppel, William S. Lackner, Lorne Reginald Macdougall, William Herbert McDonald, Herbert Boyd McKay, William Stanley Madill, Howard James Merkeley, Lloyd Alfred Moffat, Hugh Arthur Mustard, Richard Ashmer Patterson, William Patrick Powers, Ralph Erskine Robertson, George Hayercroft Ross, Fred Llewellyn Schnur, Morris Schwartz, Chester John Smith, Oliver Campbell Spratt, Ralph Emerson Stone, Deans Elliott Taylor, Arthur Blake Wagg, Harry Wilson, John Orr Wilsen, Charles Edward Wright, Joseph Elmer Wright.

Passed sophomore year—John Thomas Adams, Percy Gordon Atkinson, Cornell Oswald Bond, Russell H. Chant, Thomas Cowling, Frederick Roy Davis, Robert Seneca Decker, Bruce A. Dickson, Robert Vernoy Hall, Francis Hinds, Frederick Henry Jones, Roy Douglas Kerr, Frederick William Landymore, George Austin Liscumb, Walter Gordon Manning, John Howard W. Moore, Warren Morley, Victor Harold Macaulay, Stanley Graham McCaughey, Ernest Carlyle McDonald, Roy Gregor MacGregor, Morton A. McIntyre, Donald K. McIntosh, Robt. J. Pennal, Thos. H. Renton, Ren. Robertson, Frank Ernest Sanderson, Wm. George Spence, Louis Ernest Victor Tanner, Archibald Spurgeon Thomson, Robert Dunsmore Thornton, Marshall George Vair, Daniel James Weadick. J. L. Carroll, L. Koeppel, W. J. La Flamme, E. A. Higley, C. J. Devine, C. Dixon and H. J. McKay prevented from writing by illness.

Passed freshman year—James Christie Allan, George Feilde Allison, Franklin Howard Bancroft, Douglas L. Brown, Gerald Vincent Connolly, Percy Elgin Chrysler, John Albert Dean, Hugh Vernon Dewar, John Maxwell Dixon, Wilber John McLaren Dolson, John Richard Doyle, John Lyman Forster, William James Fuller, Lloyd Stafford Godwin, George W. Harris, Wesley Thomas Haynes, Kenneth M. Johnson, William Boyd Letherdale, Joseph Howard Lumsden, Ezra Durrel Madden, Clarence Ross Minns, Alexander D. Macpherson, W. J. McEwen, D. A. P. McKay, Wilbur Hamilton McLaughlin, Duncan Robert McLean, Maxwell Richard Parkin, Maurice Pivnich, Carlisle Purdon, Jack Wheaton Reynolds, Gordon Isaac Robertson, Lulu Maud Ryerse, Herbert Millo Schweitzer, Thomas Scott, Frank Peter Shaw, Richard Chas. Herman Staples, Wesley Dickinson Stevens, Merton Clair Tindale, William Glenn Trelford, Carl Edgerton Vandervoort, John Harold Wiltse, Nile Hughes Winn, Herbert Walter Wright, G. A. Wilcox, B. A. Dickson, S. G. McCaughey, C. E. V. Tanner.

M'GILL DENTAL EXAMINATIONS.

The results of the examinations by the third and fourth year students taking the dentistry course at McGill, were given out some time ago. E. P. Hawkshaw, of Chilliwack, B.C., and D. S. H. McDonnell, of Alexandria, Ont., have been granted the degree of Doctor of Dental surgery (D.D.S.). Both obtained honors in prosthetic dentistry, metallurgy and orthodontia. In addition to the work of the first three years they have passed satisfactory examinations in operative dentistry, pathology, prosthetic dentistry, metallurgy, crown and bridge work, orthodontia, dental surgery and dental materia medica.

The following gentlemen passed all the examinations of the third year as follows: Operative dentistry, pathology, pharmacology, prosthetic dentistry, metallurgy, crown and bridge work,

orthodontia, histology, dental surgery, dental anatomy, and bacteriology—A. B. Glickman and D. S. H. McDonell.

Mr. Glickman obtained honors in prosthetic dentistry, orthodontia, histology and dental anatomy, while Mr. McDonell obtained honors in Bacteriology.

Dr. R. B. Cunningham passed in all the above subjects with the exception of metallurgy and histology. Dr. Cunningham took honors in dental anatomy.

ADDRESS OF WELCOME TO THE CANADIAN AND ONTARIO DENTAL ASSOCIATIONS

CONTROLLER WARD: Mr. President, Ladies and Gentlemen: I am here on behalf of the Mayor and Corporation, to extend greetings to your combined Associations, and to assure you that we heartily welcome your presence amongst us. Annual Conventions, such as that which opens here to-night, cannot but have a like decided and important bearing on the progress of your Profession and the welfare of every community represented by you. It is only by comparing present conditions and methods with those of the past that we are enabled to form a correct estimate of the progress of the times. Viewed from that standpoint, your Profession has, indeed, made great strides. The most youthful amongst us cannot but regard with amazement the marvels of progress that have been made in the Profession of Dental Surgery, even during his time, and since so much has been accomplished in the past, what may we not look forward to in the future? The Profession of Dental Surgery, like that of Medicine, is daily becoming more and more directly towards prevention and correction, rather than the cure of disease. Our Board of Education has recently taken steps leading to the medical inspection of all school children. Such inspection will, I presume, involve an examination of the mouth and teeth. (Applause). If it does not, then it certainly should, for no child can be healthy whose teeth are defective. These Associations might well take into consideration and urge upon the Boards of Education throughout the country the periodical inspection of the teeth of all school pupils. We look upon our City at the present time as perhaps the greatest convention City on this Continent. We have started the construction of a great system of sewage disposal. This great drainage construction will cost us some three million dollars. We have felt that for a number of years we were using our Bay for the deliverance of some thirty million gallons of sewage every 24 hours. We have felt, and in fact we are feeling the results of it, that this sort of thing could not go on without us paying the penalty sooner or later, and we have decided to expend some three million dollars in protection against that sort of thing. There cannot be, as you know, as men and women of common sense,

thirty million gallons of sewage emptied into the Bay every 24 hours without our paying the penalty sooner or later. It must affect our water supply and contaminate it. Coupled with that, we are spending three-quarters of a million of dollars in a filtration plant. Medical Science tells us that the most modern method of dealing with the water supply where there is a possibility of pollution or contamination is by the introduction of filtration.

DR. WEBSTER: I have great pleasure in calling upon Alderman McGuire, as Chairman of the Reception Committee of the City of Toronto, to whom we owe a great debt at the present time for assistance in entertaining you at this Convention. (Applause).

ALDERMAN MCGUIRE: Mr. President, Ladies and Gentlemen: The President of the Council, Controller Ward, I think has covered the ground most fully in regard to the City of Toronto. He has told you what the City of Toronto contemplates carrying out in the great works they have undertaken, and I thought a very funny coincidence had happened here to-night, when he referred to the Board of Education's action in the inspection of teeth. I see to-night one of your members, an old friend of mine, Dr. Adams, who I think was responsible for that action being taken by the Board of Education. I remember a few years ago, that my good friend the Doctor put up many a fight with the Board of Education, or with the School Board at that time, to try to introduce this important work, and they thought that the Doctor wasn't serious, that there was nothing in his argument, that there was nothing to be gained by the introduction of the method they now propose to introduce in the Public Schools.

Now, Mr. President, you have referred to me as owing me something for what I have done for this Convention. Mr. President, when your deputation waited upon my Committee, the Legislation and Reception Committee, over which I have the honor to preside, the importance of your Convention struck me at once, and I think the members of my Committee responded to the call most nobly and gave you what you asked. Whether we gave you sufficient, I say, sir, we gave you what your deputation expected, and if we have done that I think there is no complaint to be found. (Applause).

With reference to your College, I must say I was more than surprised to find you had erected such a beautiful building, and the gentleman who was kind enough to show the President and myself through the building said that we had right in the City of Toronto one of the finest Dental Colleges in the world. That is very gratifying to know, that we in our official positions to-night, representatives of the community, representing the great City of Toronto, have the honor of having one of the finest Colleges in the world.

DR. WEBSTER: Allow me to call on Alderman Dubeau, of Montreal. (Applause).

ALDERMAN DUBEAU: Mr. Acting Mayor, Mr. President, Ladies and Gentlemen: I have much pleasure on behalf of the Canadian Dental Association in thanking you, Mr. Acting Mayor and Mr. Chairman of the Reception Committee, for the hearty welcome you have given to our Association, and also for the contribution you have donated to entertain our visitors. Your presence here, Mr. Mayor, is a strong recognition of the efforts this Association has been making since its beginning to raise the standard of our Profession in this country, and also to educate the public. You probably are not aware, Mr. Mayor, that in this City of Toronto there is an Association called the Oral Prophylactic Association, whose aim is to procure for the public pure dental material, and the benefit derived from the sale of these preparations is used entirely to spread among the public the notion of dental hygiene. The men who are in charge of this Association are doing that work entirely free, and your presence here to-night is certainly a source of encouragement to them, and will certainly encourage them to persevere,

I have heard with pleasure that your Board of Education intends to do something in the way of the inspection of teeth. I have much pleasure in saying that in Montreal our controllers have decided to appoint dentists to inspect the teeth of the school children (applause), and by September when the classes open, we expect to find them in office. I have no doubt if you will use your influence you will have the same thing done here in Toronto, and by doing so you will deserve much credit from this Association. We often have heard the remark made that dentists and doctors are not taking enough interest in public affairs, and municipal affairs, and parliamentary affairs. That is quite true. In fact we never had an Alderman dentist in Montreal, except the Mayor of 40 years ago, and that is pretty long ago, and in the last Council there were 46 Aldermen and three medical men, but not a single dentist, but in this year in a Council of 27 we have seven medical men as well as myself. (Applause). This led the Ex-Mayor to say in his address that the City of Montreal must have been very sick to have seven doctors in the Council. (Laughter). In fact, it was very sick, but I can assure you that we are looking for perfect health pretty soon. I may say, when I accepted to run as an alderman in Montreal, it was not because I felt I wished a position in public life, it was only from a sense of duty. As I have worked for the last fifteen years to raise the standard of our Profession, I thought it was my duty to accept, so as to help my Profession as much as I could, and I have much pleasure in saying that my election was assured to a great extent by the work of my confreres in Montreal. I wish to thank you, Mr. Mayor, once more for your presence here to-

night, and to assure you it is a great source of satisfaction to us. (Applause).

DR. WEBSTER: Ladies and Gentlemen: I would like to call on Dr. Whitslar, of Cleveland, to make a few remarks in this connection before the close.

DR. WHITSLAR: Mr. President, and Mr. Acting Mayor, as a representative of the United States, I wish to express to your Acting Mayor and all these good Aldermen my thanks for my countrymen, and say to you that you are doing here to-day something that I have never witnessed in our country. Namely, the City of Toronto is giving to a Dental Convention a sum of money for the promulgation of the interests of the Society. That is something entirely new to me, and you are to be complimented as a Profession, and I am going to take that back home as one of the things that has filtered through my mind, and some of the other things that I am learning every minute. One of these things is this beautiful edifice. I have seen all of the Dental Colleges east of the Rocky Mountains, and I will say that this building excells all the others in some respects, not in every respect, but you have a magnificent building here, one that will help young men to a perfect knowledge of dentistry, which will in time conserve the health of thousands of people, and thus make better citizens for you, and we won't need any police either, Mr. Mayor, and consequently our asylums will be less filled; we have will a millennium before very long. I thank you Mr. President and Mr. Mayor. (Applause).

REPORT OF DOMINION DENTAL COUNCIL, 1910.

The Council met at 11 a.m., on May 30th, and continued its sessions until Tuesday at 1 p.m.

All the representatives were present. Dr. H. S. Whittaker, of Edmonton, Alta., being the only change in its personnel.

The reports show a most satisfactory condition of affairs. The Council has been able to meet all expenses, and the Treasurer's report shows all bills paid, including the expenses of the present meeting. During the last period, the following examinations have been conducted, and certificates issued:

Class C., 8.

Class D., 3.

Class B., 15.

Professional examinations in class A. and B., 52.

The rating of candidates will not hereafter be published, simply the names of those who pass the examinations. Candidates may secure their marks by application to the Secretary.

Hereafter, candidates for examinations, who have passed the preliminary examination of any agreeing province, whose stand-

ard is fully equivalent to the standard set by the D.D.C., may be accepted upon presenting proper and sufficient evidence.

The D.D.C., has established a place for itself. It is unique in its constitution. The servant and creature of the agreeing provinces. No intreview authority, yet possessing a standing and prestige that commands the attention and respect of the dental world, and whose certificate represents without question the highest qualification exacted anywhere.

It is untrammelled by restrictive Federal Legislation, but legally authorized and accepted by the incorporated dental registering body of every agreeing province. It would be hard to imagine a more happy solution of an exceedingly difficult problem.

The educational and elevating effect of the Council upon the profession has been marked. The standards, which are at once ideal, but practical, have had their effect upon the Provincial Examining Boards and have incited them to higher standards in preliminary examinations.

It has inspired an ambition in the student body of the Dominion to possess the D.D.C. certificate, which they know cannot be secured except by conformity to every detail of the requirements and examinations. It has caused the Legislature of every province that has been approached for legislation, to pause and better understand the professional status of Dental Surgery, and has been the direct means of preventing bad legislation.

The officers for the coming term are: President, Dr. J. M. Magee, St. John; Vice-President, Dr. H. R. Abbott, London; Secretary-Treasurer, Dr. W. D. Cowan, Regina.

Respectfully submitted,

FRANK WOODBURY.

THE EDUCATIONAL REPORT OF THE CANADIAN ORAL PROPHYLACTIC ASSOCIATION.

A. J. McDONAGH, D.D.S., TORONTO.

Mr. Chairman and Gentlemen:—With your kind permission I present the report of the Canadian Oral Prophylactic Association. I realize that in a report of this kind at this time, it is necessary to be brief; therefore, I will not attempt to read the letters we have received in reply, but will try and give you a digest of their contents.

At the last meeting of the Canadian Dental Association, a resolution was passed, appointing the Canadian Oral Prophylactic Association a committee to carry forward the dental education of the public throughout Canada, and also to endeavour through the local Societies to procure legislation providing for the systematic dental examination of the children attending the Public Schools.

The gathering of this information has been attended with considerable delay. We have written the Dental Societies of the different provinces asking what they have done in the matter, and proffered our help if we could in any way assist them along this channel.

Last year the local Societies of Halifax and Sydney made an examination of school children's teeth, the services being wholly voluntary, the statistics from the said examination being proof sufficient of the great need of competent supervision and instruction. The Halifax Dental Society have been at work on a booklet on this subject, for distribution among the schools, and expect shortly to have the book on Hygiene in use there revised.

The Nova Scotia Dental Association have done nothing in this line, other than asking the members of the profession to interest themselves in the matter.

Prince Edward Island Dental Association so far have done nothing towards this object as yet, but hope to decide on something definite at their mid-summer meeting.

The Province of Quebec, has not yet secured the appointment of Dental Examiners in the Public Schools. However the Montreal Dental Club had a committee appointed last March, composed of two representatives from each of the following bodies:

McGill University.

Laval University.

Montreal Dental Club.

Dental Association of Quebec.

That committee will demand an appropriation from the City when the annual appropriations are made in June, and they have reason to believe that the grant will be made. If they are successful, their desire is to appoint two dentists, who will be sufficiently remunerated to be willing to give up all their time during school hours to the work.

We have not up to date received any report from the New Brunswick Dental Society.

In the new Province of Alberta, the School Board is about to appoint a Medical Health Officer, and the Dental Association hope to co-operate with him.

The British Columbia Dental Association as a body do nothing toward educating the people to look after their teeth, nor have they taken any action to have the teeth of school children systematically examined. Individually, the Dentists are doing good work along these lines. The Provincial Laws of British Columbia call for the School Trustees to appoint a Health Officer, among whose duties is the inspecting of the teeth of school children once a year, and which has been done in Victoria.

The Canadian Oral Prophylactic Association have laboured steadily and made good progress in the educational side of their work. This year, under their seal, "STOMAFULAKOMA," "We

stand guard over the mouth," the Society has published a pamphlet written by Dr. Geo. Grieve, on "Care of the Teeth." The Educational Department of the Province has highly approved of this pamphlet and has agreed to send out ten thousand copies to the teachers of the Province. The Association intends to distribute twenty-five thousand more among the educated people of the provinces, the physicians, lawyers, clergymen and dentists.

We have now under construction a paper on the importance of the sixth year molar which will shortly be followed by other pamphlets of interest on subjects of similar nature.

The history of the action of the Canadian Oral Prophylactic Association in regard to the new book on Hygiene is now public property and there is no need to deal further with that question.

It had been planned by the Canadian Oral Prophylactic Association to arrange for lectures for the teachers of Normal Schools, Agricultural Societies, Hospitals, Public Schools and in fact, all gatherings where a number of intelligent people could be addressed. But the Ontario Dental Association has helped us out in that work for the present at least, by appointing the Ontario Educational Committee, which is working in harmony with the Canadian Oral Prophylactic Association; as the President of the Canadian Oral Prophylactic Association is a member of that Committee.

We would like to have many more Associate Members, particularly in the Provinces outside Ontario, as through their co-operation we could do a great deal of good. Our Secretary will be glad to enroll any ethical dentist as an Associate Member.

Dr. Sercombe, who is Chairman of the Ontario Educational Committee, will give you a full report of its accomplishments.

ELGIN DENTAL SOCIETY.

REPORTED BY H. H. WAY, D.D.S.

The last meeting for the season was held in the Secretary's office; there were 7 present out of the 9 local members.

The election of officers for ensuing year resulted as below:—President, Dr. C. C. Lumley; Vice-President, Dr. C. B. Taylor, and Secretary, Dr. H. H. Way, re-elected.

It was decided to take the usual Wednesday half-holidays through July and August. A standing committee was appointed on educational work for the year, and which is intended to work in time with the Board of Education, in providing suitable instruction to the teachers for school inspection.

Dr. J. J. Teetzel has returned for the summer months from West Indies.

REPORT OF A GOLF MATCH OF THE CANADIAN DENTAL ASSOCIATION.

J. M. Magee, 0; A. E. Webster, 1. F. Kilmer, 0; E. P. Capson, 1. R. T. McDonald, 0; C. W. Lennox, 0. C. R. Morison, 0; C. E. Pearson, 1. A. Buchanan, 0; A. A. Adams, 1. W. A. McLean, 0; J. H. Irwin, 1. R. T. Berwick, 0; T. R. Mallory, 1. W. Wickett, 0; R. G. McLean, 1. W. C. Oxner, 0; G. G. Hume, 1. C. O. Beam, 0; Harold Clark, 1. W. Murray, 0; Geo. Gow, 1. J. A. C. Huggan, 1; W. C. Gowan, 0.

DENTISTS IN ATTENDANCE AT THE DENTAL SOCIETY OF WESTERN CANADA, AT WINNIPEG, APRIL, 1910.

WINNIPEG.

J. F. Bush, J. F. Taylor, A. E. Clint, G. C. Mathison, W. H. Reid, W. H. Geddes, J. L. Benson, J. S. Stalker, C. H. Moore, J. H. Greenfield, C. E. Kennedy, W. C. Morden, J. F. Maloney, J. P. Raleigh, B. J. Curry, D. J. Leckie, Grambergue, W. R. Keough, S. H. Bayne, Louis F. Bouch, C. B. Johnston, G. J. Clint, J. E. Ross, M. H. Garvin, Manly Bowles, J. F. Taylor, Jr., A. H. Weagant, A. P. McInnis, J. G. Snidal, A. E. St. John, W. W. Wright, H. R. Tweed, K. C. Campbell, W. H. McNally, J. M. Benson, H. F. Christie, A. J. Courtice, C. N. Walsh, H. S. Anderson, D. H. Ross.

MANITOBA.

A. W. Myles, Treherne, Man.; E. R. Homes, Brandon, Man.; E. A. Spencer, Brandon, Man.; J. T. Morrison, Virden, Man.; B. Bailey, Dauphin, Man.; H. E. Bewell, Dauphin, Man.; G. A. McDonald, Yorkton, Man.; W. J. Saunders, Brandon, Man.; C. A. Fitzpatrick, Brandon, Man.; D. P. Stratton, Melita, Man.; H. A. Croll, Souirs, Man.; G. Frizell, Minnedosa, Man.; J. R. Duff, Portage la Prairie, Man.; C. J. F. Jackson, Carberry, Man.; Wm. T. Hackett, Selkirk, Man.; R. A. McGillivray, Portage la Prairie, Man.; G. H. MacDonald, Neepawa, Man.

SASKATCHEWAN.

G. E. Armstrong, Regina, Sask.; J. E. Rundle, Moosejaw, Sask.; G. L. Cameron, Swift Current, Sask.; S. Graham, Moosomin, Sask.; E. R. Sawyer, Abernethy, Sask.; E. L. Con, Moosejaw, Sask.; R. C. Bain, Grenfell, Sask.

ALBERTA.

A. W. Callum, Calgary, Alta.; E. M. Doyle, Calgary, Alta.; C. J. Courtice, Lethbridge, Alta.; H. Darling, Edmonton, Alta.;

ONTARIO.

D. M. Mitchell, Fort William, Ont.; J. M. Macfarlane, Kenora, Ont.; F. E. Roach, Trade Bldg., Wabash Ave., Chicago, Ill.

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No. 7

PUBLIC INTERESTED IN DENTISTRY.

Every human effort seems to go in cycles, or seems to culminate and fade away and then come on again. This is the ebbing tide in dentistry in Canada, in many directions. It is especially so in the matter of recognition by the public. The public are to-day more ready to acknowledge the value of the service rendered by a dentist than at any previous time. It is only a few years since here in Toronto the School Board would not allow Dr. Adams to show them the lamentable condition of the children's mouths in the city schools. In fact, when he established a free Dental Hospital for the poor, the city would not exempt the building from taxes though he offered the whole thing to them free, if they would keep it up. As a matter of history the city sold the hospital equipment for taxes and closed a much needed charity, which cost the city nothing except the exemption from taxes. At the present time, Dr. Adams has rented the building for sufficient income to keep him the balance of his days.

To-day we find the public interested in dentistry. They know

that a new and modernly equipped dental College exists in Ontario and that it is not necessary to go to a foreign country to get a dental education. Many know that dentistry is the only profession, the members of which may go from one province to another without an examination. Boards of Education, Municipal Councils and Hospital Boards are willing to be shown the value of clean well-kept mouths to the people. The City Council, of Toronto seems anxious to make amends for the past. They made a grant to the recent Canadian and Ontario Dental meeting to forward the interests of dentistry. Acting Mayor and President of the Council in his address to the delegates of the Association pointed out the necessity of having the teeth of school children examined and cared for, and urged the profession to work earnestly toward that end. In Montreal this has been accomplished. The Board of Education, of Toronto, is interested and have received deputations on two occasions. The department of Agriculture, of Ontario will shortly send out bulletins on the care of the teeth. The department of Education has given approval of a pamphlet thousands of which have been circulated.

The present attitude of the government is vastly different from only a few years ago, when as a member of more than one deputation, the writer with others interviewed Hon. Mr. Harcourt the then Minister of Education, to ask him to amend the School Act so that if the parents wished, and the trustees directed, the teeth of the school children might be examined. Mr. Harcourt was afraid of such an innovation. Though he promised much and at many times; he never brought it up in the house. The present Minister introduced the much dreaded innovation and no body dropped dead, or the administration did not become discredited before the people. If School Boards desire to have the teeth of the school children examined, "there is none to say them nay."

How shall we make the best use of the present opportunity for the public good? The public are anxious to be entertained, and if they at the same time gain some useful information they are yet more pleased, I have learned from many years of observation that the public press are anxious to get articles on dentistry; and what is more, they are anxious to get sensible articles on dentistry, failing these they use clippings which have gone the rounds for fifteen years. Here are a few: "A wild man with two teeth as long as a lead pencil," "Dr. X. has put a gold crown on his pet cats tooth," "The Jap extracting a full set of teeth in two minutes with his fingers," "Filling Horses' Teeth with Gold," "Diamonds used as fillings for decayed teeth," I have noticed these with a few others turn up regularly. If news is scarce and a prominent paper prints one of them, every paper in the land copies it and trots out its own ghosts. When I see that "dog or cat with the gold tooth" start, I know it is going to cost the publishers three or four dollars for clippings before it has gone its rounds.

While these articles are popular they are not to be compared with a few sensible articles, which have gone from coast to coast in Canada. Some sensible dentist in Alberta wrote an article on how to make a cast gold inlay and compared its advantages with gold foil and other fillings. This has been printed over a hundred times in the past year. The article lately sent out by the Canadian Oral Prophylactic Association has been copied in whole or in part all over Canada.

It has been the constant personal education in the dental office which has made a demand for such reading. As soon as it is asked for in the press, the circle rapidly increases. One well written article copied all over Canada will make more people interested in their own teeth and those of their children, than all the tooth-aches and extractions that have occurred in this country in a year.

Then what is our duty. Read carefully the most recent articles on the relation of the mouth and teeth to public health; acquaint ourselves with some statistics which show the condition of the mouths of the youth of the country; study the influence these conditions may have upon the mental and physical development of the rising generations; note that insanity, criminality, mental depravity, deafness, all forms of throat infections, pneumonia, tuberculosis, rheumatism, all forms of anaemia, digestive and elementary disturbances, associated with many chronic, wasting diseases, may be directly or indirectly caused by a badly kept mouth. Note in our practices where patients have rapidly recovered in health after their mouths have been set in order. We should study carefully the prophylactic treatment, most suitable for each case under our charge.

Armed with this and much other necessary information every dental organization and every dentist in Canada should be a centre for the dissemination of the glad tidings to a receptive public. Governments, Ministers, Commissions, Boards of Health, Municipal Councils, Boards of Education, Teachers, Hospitals, Boards of Charity, Farmers, and Women's Institutes, Council of Women and especially Physicians should receive our help in proportion to the good they can do others. No opportunity should be lost to consult with anyone on this subject, or read a paper or give an address where opportunity affords. Especially do not neglect an opportunity to have suitable articles on the subject in the local press. None of us should shirk our duty, in this matter, because it may not come again in the same way for years. The field is so large that there is room for all, and thousands upon thousands not reached in any way in ten years.

Editorial Notes

Dr. Stanley S. Moore, has begun practice in London, Ont.

Dr. James Durnan, has purchased the practice of Dr. Frank Buchanan, of Galt, Ontario.

In a court in Memphis, three teeth which were extracted by mistake were valued at \$2,500.

A long story about "the teeth I have lost" is going the rounds of the dailies and weeklies just now.

A free Dental Hospital was founded in Boston about a year ago; Dr. Alice Steeves, of Albert County, New Brunswick, is in charge.

Dr. Pollock, of Listowel, Ont., has sold his practice to Dr. G. Long, of Blythe. Dr. Pollock intends to go to western Canada to practice.

Dr. Burt Richards, of B.C., has brought action against the B.C. Dental Board for not passing him at the dental examinations a year ago.

The Ontario Dental Society, has appointed a committee to see if the Legislature will provide for the care of the teeth of those in the asylums and penal institutions of the province.

A cordial invitation is extended to the druggists, dentists and physicians of the Dominion to visit the City in September, and take in the D.D.D. Lawn Bowling Tournament, which will, as usual, be held on the beautiful Lawns of the Granite Club. Programs of the tournament will be issued later, and will be mailed on application to the Secretary, Mr. W. B. Graham, Registrar, Treasurer of the Ontario College of Pharmacy.

Dr. James Roberts, who has practised dentistry in St. Mary's for thirty-six years, is retiring this month. Recently his eyesight has become affected and this necessitates his giving up the practice of his profession. All citizens will be pleased to know that he will remain in St. Mary's. He has borne his share of the duties of citizenship with ability and cheerfulness. For many years he has been secretary of the Public Library Board and was largely instrumental in getting the fine Carnegie Library building here. He also served as town councillor for several years and has always been actively interested in militia matters, having seen service in the Fenian Raid.

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Original Communications

THE RELATION OF THE NASAL AND ORAL CAVITIES.

BY J. P. MORTON, M.D., F.R.C.S., EDIN.

Read before the Hamilton Dental Society, February 14, 1910

I am not sure that I did a wise thing in assenting to write a paper on this subject. It sounded easy over the telephone, but I have since found out that your object is to get at the effect which certain nose conditions may have on the dental arch, and I find this a complicated although a very interesting question.

I desire to be scientific, and so shall not start out with any theory and try and fit my facts into it, but shall rather follow the facts even if I cannot from them form or substantiate a theory. An orthodontist might plausibly start with the supposition that irregularities in the dental arch cause alterations in the nasal cavities, and produce mouth breathing, and therefore that all mouth-breathers should go to the orthodontist; and I might start with the dogmatic assertion that mouth breathing causes all deformities of the arch and that the orthodontist should send his cases to the rhinologist. Many a good professional ship is wrecked on the shores of such dogmatic theories. The Germans are the surest and closest scientific thinkers to-day, as exhibited both in religion and medicine, and in visiting their clinics one learns to discard theories as prejudicial, and rather to seek all the facts and give them their proper place and due importance. Let us remember that the true scientist must admit that there are many things he does not know.

I think that embryology is a good starting point. If we follow the correct development of the fleshy and bony parts of the nose and the mouth we shall the more clearly see when, and how easily, deviations from the normal may occur. We shall see how very slight influences, when applied at certain early stages of development, may finally produce considerable deformity. The causes will be seen to be very numerous: some will easily be recognized while in other cases we shall look in vain for them. I have made some rough diagrams to help us to understand the chief

points in the embryology. The bony and fleshy parts of the face originate from the outgrowth of processes around the cavity formed by the bending forward of the primitive cerebral vesicle over the end of the notochord. About five weeks after conception the primitive buccal cavity or stomodeum has a radiate appearance due to the manner in which these processes are formed. A broad median process, the fronto-nasal-process, descends from above and this is separated on each side by a slit from the maxillary processes. These again are separated from the mandibular processes by another slit. These mandibular processes early unite in the middle line to form the lower jaw. The fronto-nasal-process soon changes and divides into four rounded buds, the relations of which are shown in the next drawing. On each side of a slight depression in the middle line is the internal nasal process from the superficial part of which is produced the central part of the upper lip, and from the deeper aspect of which the inner segment of the intermaxilla is produced, which carries the central incisor. Separated from this by a hollow, which subsequently forms the anterior nares, is the rounded external nasal process from which develop the cheek, the alae nasi, and from its deep aspect the outer segment of the intermaxilla and the lateral incisor. External to this a fissure runs up to the eye and this fissure becomes the nasal duct. The upper lip is formed by the union of the lower parts of the internal nasal and maxillary processes, which thus exclude the external nasal from participation in its free border. At the same time the deeper parts of these nasal processes are uniting with one another and with the palatal plates, which grow horizontally inwards from the under side of the maxillary processes. The union of all these elements is taking place from the sixth to the tenth week and by that date even the uvula, the last part to unite, should be complete.

Now we can easily see how interference in this process of development will upset Nature's calculations and alter the finished product. If the internal nasal process fails to unite with the structures in external relation to it, ordinary hare lip is produced. If limited to the soft parts we have simple hare lip when the cleft runs between the internal nasal and maxillary processes. If complete, then the cleft runs between the same two below and superficially and between the internal and external nasal processes deeply, and above. The cleft in this case goes into the nose through the alveolus between the inner and outer segments of the intermaxillary and has therefore on its inner side the central incisor and on its outer side the lateral incisor.

These other diagrams will show how cleft palate is produced by a very slight lack in development. The ethmo-vomerine septum, which is a growth downwards of the fronto-nasal process, may not grow down sufficiently, this process should unite harmoniously with the incoming superficial maxillary and palate bones about the tenth week. One side may unite with the septum

and then we have a lateral cleft, or if both sides fail to unite and the septum is well down the cleft will seem to be double, whereas if the septum is not well down the cleft will appear central and single. The defect may be very slight, as in bifid uvula, or it may extend to the naso-palatine canal, or even right through the alveolus down each side of the intermaxillary bone. Again, any small deviation in the direction of these bones will greatly affect the nose and the dental arch, for instance when the maxillary and palate ingrowths are too vertically placed we have high arched palate. Moreover, the intermaxillary bone formed of its two segments, one from the internal and the other from the external nasal processes, causes errors if not properly placed. It is not completely united with the rest of the maxillary bone until about the sixth year, and is very often crowded forward or tilted upwards producing elongation of the arch and great prominence of the incisors, and when we consider all the influences which may act on these unmaturing bones up to the age of about six we can begin to see the possibilities as to malformation of the nose and arch. Let me only mention two or three other developmental errors: median hare lip, oblique facial cleft, macrostoma in which the soft parts of the maxillary and mandibular processes fail to unite when the formative influence of the lips and cheeks on the dental arch and teeth are lost.

So we see how closely well formed nostrils and dental arches depend on there being no interference with the processes of development. If you ask for the explanation of these errors of development, we say that they are due to hereditary and congenital conditions, which sounds very well, but which really means that we know very little about the matter. Why is it that a family that I know in Hamilton has had for the last three generations webbed fingers, and how is it that a child born at Hamilton Hospital about two months ago had only one leg, and we all answer hereditary and congenital conditions. The true scientist must admit ignorance and so the rhinologist and orthodontist must recognize that a very large number of the deformities which in the nose result in bad breathing and in the mouth in malocclusion, are due to hereditary and congenital defects. Moreover the bad breathing resulting from these developmental errors leads to disturbances of the dental arch and the deformed arch increases the mouth breathing, and so we have a vicious circle formed. These hereditary and congenital defects are only the very apparent ones, but we must remember that there must be very many slight tendencies to deformity given to the parts at this early period which may not show until the time of the permanent teeth. For instance, a case of hereditary deafness may not come until fifty years after birth, and so many cases of malocclusion seen at the time of the eruption of the permanent teeth, may not be explained by conditions existing immediately previous but the parts may have been given this tendency before the bones were united or ossified.

Now even if we suppose the harmonious development and union of the parts mentioned to this point, deformity may result from interferences with the ossifying processes. The superior maxillary ossifies very rapidly from seven centres, the centres appear about the seventh week and ossification is complete about the tenth. Ossification may be tardy or too rapid. When it is tardy the bone is subject to pressure which it cannot stand, and when it is too rapid the palate processes might be hardened before union occurred. The intermaxillary bone is slow to ossify and up to the sixth year very little pressure will alter its position. It may be crowded by the superficial maxillary bone or misplaced by such habits as sucking the thumb.

Now, if we consider this ossifying and articulating as going on until about the sixth year, the next most potent influence from the rhinologist's point of view in modifying the dental arch is the condition of the breathing. Obstruction of the breathing may be caused by deviated septum, polypi, enlarged turbinates, adenoid vegetations and enlarged faucial or lingual tonsils. If the breathing is only partially obstructed the mouth may remain shut and the air with difficulty is sucked through the nose, the palate at once tends to arch and the sides of the nose are retracted, because articulation and ossification are not completed. If the nose is almost completely obstructed the mouth is opened and there is a plus pressure below the palate which raises it, although I believe the bad results are chiefly due to the overaction of the buccinator and masseter muscles, which will throw the centre of the arch upwards. This condition then results in a high palate, a narrow arch and protrusion of the inter-maxillary bone with lengthening of the arch. It is easy then to understand, with all these changes, that when the permanent teeth erupt the first molars or anchoring teeth are distally occluded on both or one side, and following this, of course all the other teeth will be more or less maloccluded. This condition of the teeth is pretty constant among mouth breathers, but we must remember that many bad mouth breathers have normally locked first permanent molars. I believe in the casual relation of mouth breathing to this particular form of malocclusion, but there are many who think it unnecessary to have the mouth breathing stage in this casual relation and consider the arch condition, the malocclusion and the mouth-breathing as direct results of interference with development. I like to look upon it as a vicious circle, i.e., interference with development produces the deformity of the nose and arch and these cause both bad breathing and malocclusion, then the malocclusion makes the arch worse and this gives us more obstructed breathing, and so the circle starts again. Fortunately Nature stops this by fixing the parts.

Permit me to draw your attention to a few types of facies which are interesting, characteristic, and must influence greatly the handling of the case.

The Adenoid Type: We have already mentioned the nasal and oral malformations of this type. Let me add that the lips are thickened and retracted and the teeth do not get this support; the tongue lies in the lower arch instead of the upper and so fails to support as it should. The expression is dull, the nose pinched, absence of groove over the alae nasi, inability to blow the nose which often contains tenacious mucus, and the voice is nasal. The mother will tell you the child catches cold frequently and easily, that it is very restless at night and that it snores. After passing through a restless and irritable stage they become dull and mentally deficient. Noticeable reflexes are: enuresis, twitchings, laryngismus stridulus, coughing, hawking and stammering. The glands at the angle of the jaw are usually enlarged and there may be earache with suppurative ear conditions.

The Congenitally Syphilitic Type: We now know that the *spirochaeta pallida* is found in the dental as well as the other tissues of a 6 or 7 months old foetus. These germs, by their local irritative effect and by their general toxic effects, may be looked upon as producing all the troubles of these unfortunate sufferers. These children are emaciated and anaemic. The skin is wrinkled and of a dull color. The face is wizened like that of an old man. During the first year the child suffers from rashes and snuffles. It develops sores on its lips. Fortunately many of these children die either before birth or during the first year after. If they are coaxed through this stage the above symptoms largely disappear and for a while the patient or its parents are in a condition of false security, for their whole life is one of trouble. The child is stamped for life. The face is wide, the cheeks and nose are flat, the bridge of the nose is saddle-shaped and the frontal bosses are very prominent. The bones and cartilages inside the nose are usually deformed and often decayed. To the dentist the signs are very definite. Radiating scars are seen about the mouth. The temporary teeth usually appear early, are discolored, crumble away and, despite the statement of many writers, are subject to the characteristic erosions. The permanent teeth are stunted and separated by interspaces. The upper central incisors are most commonly affected, then come the upper laterals and lower centrals. They diminish in size from root to crown and the angles are rounded off, the enamel being imperfect. The crowns suffer from pitted sulcate or cup-shaped erosions. The cusps may be laminated or serrated. But the best known anomaly is that described by Hutchinson: about the centre of the crust there is a crescentic notch which is described as being the large segment of a small circle. There are often found in these cases very large or very small teeth, and they are certainly never so resistant as in healthy individuals.

The Rachitic Type: A great weight of authority now seems to be in favor of considering rickets as being due in some indirect way to syphilis, but whether this is the case or not the two types

seem to be quite definite. Malnutrition is the chief word in rickets, but then syphilis might be at the basis of this. In this condition the whole bony system shows eager attempts to grow but is very backward in ossifying. The natural curves of all the long bones is exaggerated, the head is flattened antero-posteriorly, and the forehead appears square. The frontal bones may be very prominent, but this may be syphilitic. Rachitic teeth erupt late, are stunted and defective in enamel, and they certainly do not show the same tendency to erosion as the syphilitic teeth do. The ends of the incisors become concave, but this cavity may be said to form the small segment of a large circle, whereas in the specific teeth it forms the large segment of a small circle. The spine, pelvis and other bones are irregularly enlarged and wrongly curved.

Permit me to say a word about the respective duties of the rhinologist and the orthodontist in treatment. As to the cause, we have seen that the nasal and oral conditions are interdependent, and if this is the case the rhinologist and orthodontist should work together. Let the dentist call in the aid of a physician if he is not sure of the constitutional condition underlying, and in all of the mouth-breathing types you may think it selfish of me to say that I think it the dentist's bounden duty to have the nose and throat thoroughly examined and corrected for it will make the dentist's work easier and more permanent. In syphilis and rickets much can be done by medical treatment to assist the orthodontist in maintaining the correction. I should be just as insistent that the rhinologist should not be satisfied with correcting the breathing but should send the case to an orthodontist if there is the slightest suspicion of malocclusion.

Before closing, I have thought it might be interesting to say somewhat of the nose, its functions and its chief trouble, e.g., catarrh.

The nose, naso-pharynx, accessory cavities and mouth are all lined by the important structure called the mucous membrane. This is made up of a number of layers of ciliated columnar epithelium, this is on a basement membrane, underneath this is the submucous tissue and the whole structure rests on the periosteum. This membrane is studded with straight, branched or convoluted glands which extend from the surface down to the submucous layer and these glands throw out an important lubricating and moistening secretion. There are two other important kinds of tissue found in the mucous membrane—one is the erectile tissue formed of dilated groups of veins found abundantly on the turbinates and sparingly on the septum; the other is the lymphoid tissue which is really collections of ductless glands and is found distributed as follows: the faucial and lingual tonsils and the well-known adenoid vegetations are just large groups of this tissue, and then under the naso-pharyngeal mucous membrane, and also

under the mucous membrane of the nose are to be found very small collections of this tissue.

The Functions of the Nose: 1. Olfaction; 2. Resonating Chamber; 3. Breathing.—In this relation we may say that the normal nose should filter dust and germs from the air. These stick in the mucus which lies on the mucous membrane, and if the mucous secretion is in good condition, which it is not in catarrhal states, these germs will be killed by it, for it is antiseptic. Again, the normal nose should raise the incoming ice-cold air to blood heat by the time it reaches the pharynx. Lastly, the normal nose secretes about a pint of fluid per diem and a large part of this is taken into the blood through the lungs and might be named the internal secretion of the nose, just as the thyroid is known to give an internal secretion to the blood, absolutely necessary to life. Now, if the breathing is obstructed, the air is not properly heated and the delicate lung cells are injured, the air is not properly filtered and germs and dust of all kinds reach the naso-pharynx and lungs; and the air does not get its internal secretion, which seems necessary to health, for the child becomes poorly nourished and is stupid and dull. This last result is sometimes put down to the fact that the child does not get enough air, but this is not the case, for the child can draw more air in through the open mouth than through the nose, and so we conclude that these results are due to the air not being properly treated, i.e., heated, filtered and moistened before going into the lungs.

What is catarrh? If you say to a layman that you have catarrh he will go away thinking that you have a terrible disease of the nose which smells. The word catarrh is derived from a root meaning 'to run.' Scientifically speaking, catarrh is any inflammatory condition of any mucous membrane. There is generally a running, for the glands, being inflamed, work overtime as it were. There are three stages of catarrh: 1. Acute rhinitis or our ordinary cold. In this there is an ordinary acute inflammation of the mucous membrane of the nose or throat. The nose is stuffed up and runs. This condition should clear up in a few days and the mucous membrane become normal.

2. If a patient has suffered from a great many of these previously mentioned acute attacks, the mucous membrane becomes chronically inflamed. The tissues being thickened so often become really hypertrophied, the glands secrete chronically and the patient complains of dropping down the throat. The first stage can always be prevented from passing into the second for there is always some good cause for a patient having a great many acute inflammations of the nose and throat, deviated septum, for instance.

3. After the mucous membrane has suffered from chronic inflammation for years, the mucous membrane passes into an atrophic state which means that it becomes thin and develops too much fibrous tissue. But the greatest change is in the glands which, having

been overworked for so long, also begin to dry up and atrophy, the secretion becomes less in quantity and more viscid and finally so perverted that it develops smelling granules in it. In this way the case goes through the atrophic dry catarrh into the smelling catarrh, which we call ozoena. In the first two stages and in the atrophic part of the third stage the condition can be cured, but when the mucous membrane becomes markedly atrophic and the glandular secretion markedly perverted the condition can be relieved but not cured.

The mucous membrane of which we have been speaking lines the accessory cavities of the nose also, and therefore these inflamed conditions may extend into these spaces. One of these cavities, viz., the antrum, is of especial interest to the dentist, and I wish to mention one or two points in regard to etiology and treatment.

The roots of the second bicuspid and first and second molars are generally separated from the mucous membrane of the antrum by the periosteum and a layer of bone. This layer of bone may have varying degrees of thinness and there are undoubtedly cases in which no bone exists and the roots project into the antrum, only covered by mucous membrane. Therefore, it is plain that the teeth can cause inflammation of the antrum either by simple irritation or by infection. The second cause I wish to mention is the nose, the causative relation of which is even more apparent than the teeth. The mucous membrane of the nose, which is so often inflamed, passes through the antral opening of the middle meatus and lines the antrum and offers the easiest means of extension of inflammation. Moreover, the antrum is unfortunate in being so situated that the frontal sinuses and the anterior ethmoidal cells naturally drain into it, at the hiatus semilunaris, so that any infective process going on in these two sinuses must set up trouble in the antrum. One seldom finds frontal sinus trouble without antrum trouble. These facts are sufficient to show that abnormal conditions must necessarily be more commonly caused from the nose than from the teeth. This has led to the almost universal conclusion regarding the surgical treatment that much better results are obtained by draining the antrum through the nose than through the tooth socket. The anterior third of the inferior turbinate is removed, and about an inch behind the anterior end of the same body we make a fine large opening on a level with the floor of the antrum. This obviates all the great difficulties with which you are so well acquainted when you try to drain by drawing a tooth. I am inclined to take this position: If there is no bicuspid or molar trouble always drain through the nose, if there is slight tooth trouble, fill the tooth and drain through the nose; while if there is considerable tooth trouble, drain both through the tooth socket and the nose.

THE LEGITIMATE SPHERE OF SILICATE CEMENTS.

BY DR. S. G. RITCHIE, HALIFAX, N.S.

Read before the Canadian and Ontario Dental Associations May 31, June 1, 2 and 3, 1910.

What is the legitimate sphere of silicate cements? More than once during the past four years, while removing the discolored and miserable remains of once beautiful and promising fillings, I almost concluded that there was no sphere, legitimate or otherwise, for them in this world, but for the time being it was a simple matter to assign a suitable one, both for them and their manufacturers, in the next.

However, it is hardly right to condemn all these products because most of them are useless. It was really through the failure of these latter in practice I got my most valuable information. Experience has taught me to accept with the proverbial grain of salt any extravagant claims on the part of the average manufacturer. With a goodly number of disastrous experiments to my credit in the mouths of unsuspecting victims, wisdom came, and the elimination of one material after another went on until the sole survivor, which gave me the most uniform and satisfactory results was reached. Even with this I take no chances. Every fresh bottle is tested for discoloration. The test, which is easy and takes up little of one's time, is well worth the trouble. A solution of Potassium Sulphide (Liver of Sulphur), is prepared. Into this, a properly mixed and hardened pellet of the cement is dropped. Any marked discoloration after twenty-four hours is sufficient to condemn the product tested. It is the part of wisdom to subject every new silicate preparation to this test, if discoloration in the mouth is to be avoided.

The chemical composition of these cements is variable. The announced statements of the manufacturers with regard thereto, are extremely vague. From unbiased analysis it may safely be concluded that silicates of calcium and aluminum form the basis of the powders, with, of course, various modifying substances, while the liquid in all cases is merely a modified phosphoric acid. The chemical reaction between powder and liquid is extremely complex and apparently indifferently well understood. The diversity of opinion is such that the famous old line—

“Who shall decide when doctors disagree”
expresses the situation admirably.

This much, however, is certain, the translucency, which constitutes the chief reason for using the silicates, depends upon the liberation of silicic acid during the chemical reaction. Silicic acid, as you probably know, is a perfectly transparent, jelly-like substance. Admixed with the oxyphosphates which are also formed, translucency is the result. Just when this translucency is at its best is the vital question. The inference seems to be per-

fectly justifiable, that this point is reached when the liquid has been exactly saturated with the powder. Theoretically, the amount of silicic acid set free would then be the greatest possible, and, as only a definite quantity of oxyphosphates could, and would be formed during the reaction, the ratio between the two is constant, that is, the maximum of translucency is reached.

To formulate the theory is one thing; to put it into practice is another. Nevertheless, my best results have been arrived at by sticking to the theory and trying to get as perfect neutralization as possible between powder and liquid. About three times the quantity of powder can be incorporated into a given quantity of liquid. Little by little it is drawn in, every particle being thoroughly moistened, as in a mix of plaster of paris, until the point of saturation has evidently been reached, then after rapid spatulation until no dry crystals are visible, the fairly sticky mass is ready for use.

Everything now depends on the quickness and deftness of the operator, in order that crystalization may not be interfered with by unnecessary manipulation. Taking, for example, one of the anterior teeth with the proximal contour partly gone, my technique is as follows:—With rubber-dam applied, the necessary separation obtained, and the cavity prepared, a perfectly clean celluloid strip with the necessary restoration burnished into it, is slipped between the teeth, and held lingually by the fingers of the left hand. Sufficient of the mix to fill the interior of the cavity is then carried to place with a flattened orange-wood stick, then a second amount to complete the filling is added and quickly pressed home. Tension is then put upon the strip so that it is drawn directly against the proximal and labial surfaces of the tooth, and in such a way that, while the contour is immediately restored, any excess of material is squeezed out on the lingual side. A flat burnisher used on the strip will then put the cervical and labial margins of the filling in nearly perfect condition, while by the same means, the lingual surface may be so shaped that very little work with the stone or disc will be required. Of course all this can be done in less than half the time required to tell it. A stream of hot air is now thrown on the strip, directly over the filling for several minutes to hasten crystalization, when the strip may be removed leaving a beautifully translucent surface. Fine discs or stones aided by parafine may now be used to give any necessary finishing touches, after which a coating of hot parafine should be applied, with the double purpose in view of neutralizing any surface acidity and protecting the filling from saliva during the later stages of crystalization.

I have said nothing, previously, about cavity preparation. Except in certain cases where fairly strong unsupported enamel walls are left standing, I use exactly the same care and technique in this respect that I would for other materials, not only, because

of the nature of the cement, but because, should it be necessary at any time to replace the filling with other material, it is a relief to know that the patient has not to undergo the strain, and the operator the labor of a second cavity preparation.

Both from the aesthetic and practical standpoint, in small and medium sized proximal, buccal and labial cavities in the anterior teeth, a good silicate cement is usually satisfactory when properly manipulated. In selected cases, one may sometimes go still farther afield. By anchoring with oxyphosphate, headed platinum tooth pins in pits drilled near the incisal margins, I have restored a missing third of thick centrals and laterals, and after from one to two years usage the fillings still look first rate. However, certain other experimental fillings gave such poor results that I now believe the promiscuous use of silicate fillings is to be condemned, and only after the most careful consideration should they be placed other than in the proximal, buccal and labial cavities previously mentioned.

Even the best of the silicate preparations at our command are far from possessing all the desirable properties which a good cement should exhibit. In order to obtain translucency other equally important features are sacrificed. Silicic acid has no other good properties in a cement. It is not a good binder, and, according to Prof. Fleck, as a result of its presence the filling, instead of being neutral, has a prolonged acid reaction. It is hardly necessary for me to call your attention to the result of this objectionable feature.

Then again, both powder and liquid in some cases are markedly hygroscopic and there is also a tendency on the part of some powders to absorb carbon dioxide from the atmosphere; hence the implicit directions to keep the bottles tightly stoppered. Furthermore, the separation of crystalline constituents from the liquids is by no means uncommon. This feature in itself is almost enough to condemn any product. Fluids, for a reasonable time at least, should retain their original form. Uniform results are impossible otherwise. Again the lack of hydraulic properties is to be deplored.

From the aesthetic point of view, the appearance, while vastly superior to that of the ordinary oxyphosphates is by no means equal to that of porcelain, and the matching of a mottled tooth is impossible. Then again, there is the problem of discoloration, which, from the standpoint of the practitioner is probably the worst fault of them all.

What then, is the sphere of the silicate cements? Perhaps I have answered the question; perhaps, like the diplomatist, everything else. Be this as it may, permit me in conclusion to say: Study the materials; learn how to use them. Use them conservatively; they are by no means perfect. Then, if a failure does occasionally happen, don't consign the whole thing to eternal perdition, but cultivate a philosophic mind.

THE PROPER FIELD FOR PORCELAIN INLAYS.

BY DR. ARNOLD CLARK, TORONTO.

Read before the Canadian and Ontario Dental Associations, May 31, June 1, 2 and 3, 1910.

Your program secretary sometime ago informed me that I was to read a paper on the subject assigned to me, and that it was to be a short one, and apparently fearing that I might overlook the instruction he appended a note reminding me that it was to be a short paper. In the full program of a convention, I appreciate the importance of avoiding prolixity and wandering, and I promise to be brief and to stick to my subject.

I am asked to suggest where porcelain inlays are indicated. I don't regard myself as enough of an authority to dogmatize on the subject, so I shall simply give my personal views, based on my own experience, and hope that they may provide a useful discussion of this important subject.

The intelligent use of porcelain inlays involves a consideration of the virtues and failings of this material—especially of its failings.

Its paramount virtue is undoubtedly its aesthetic value. More than any other material it may be made to approximate the appearance of the natural tooth. And were it not for its failings we could conceive of it becoming almost the universal filling material. In fact, it is these failings or objections that limit and determine the field for porcelain inlays.

One serious objection to these restorations is the cost. The making of a perfect inlay in porcelain consumes so much time that a large fee has to be asked for it. However, as this fact becomes an objection only where the patient's purse feels it, we shall dismiss it with this passing mention.

Porcelain is a hard, brittle, breakable material, and the best and strongest form that may be given the restoration in many situations may still leave it liable to fracture.

Porcelain inlays, like all inlays, demand that the cavity must be so formed that the inlay will "draw"—to use a moulder's expression. The form of incisors and cuspids is such that it is often difficult to give cavities this form, and at the same time provide for adequate retention. This difficulty is greater with porcelain than with gold. A gold inlay may properly have a thin or slender portion, and still be strong, while the same feature in a porcelain inlay would be a weak part and invite fracture and failure.

Whereas with the gold inlay, as soon as the cavity is formed it is necessary only to push in a piece of softened wax and fashion it to the form of the tooth, with the porcelain inlay it requires that a piece of foil 1-1,000 of an inch in thickness shall be accurately burnished over the entire cavity surface, with practi-

cally no tears, certainly none upon the cavity margins. This is a delicate, difficult and tedious part of the operation and the difficulty increases with the inaccessibility of the cavity, also with the smallness of the cavity.

These are the chief considerations that have to be taken into account in determining where porcelain inlays shall be used.

Of all cavities calling for a porcelain restoration the greatest value, perhaps, is realized in those involving the corners of incisors and cuspids. Gold fillings, either cast or malleted, in these cavities may have great utility, but are most unsightly. Recently some interesting work has been done with a combination of a cast gold inlay and silicate filling, but they are only partially successful. The best results by far are obtained from the porcelain inlay.

Another situation where porcelain is scarcely less of a boon than in the above mentioned corners is the cavity in the gingival margin of incisors, cuspids and bicuspid. Many of these cavities are round or nearly so, and with them may be classed those labial cavities or pits due to developmental defects and found nearer the incisal edge of the tooth. These rounded cavities are best cared for by those porcelain systems that provide instruments that make the cavity perfectly round, and slightly tapered like the neck of a glass stoppered bottle, and other instruments that grind a suitably colored porcelain rod or button to fit the cavity. These inlays, in my opinion, meet the requirements of the ideal filling more nearly than any other we know. Of course, gingival cavities are more frequently of the crescent form than rounded. Here the foil matrix must be resorted to.

Approximal cavities present increasing difficulties in the making of the foil matrix, and the smaller the cavity the greater the difficulty. Where the approximal cavity is situated lingually the making of the matrix is still more difficult than in the labial situation. Fortunately as the difficulties of making porcelain inlays for approximal cavities increase the objections to the other materials decrease, and porcelain gives way to silicates and gold fillings.

Where the incisal portion of an incisor or cuspid is deficient owing to arrested development, porcelain, in the form of a tip, is indicated.

Lastly there are occasional situations in bicuspid, and even in first molars, where a space mesially would expose a metal filling. Here, a porcelain inlay is often most desirable and the presence of the space facilitates the making of the matrix.

DISCUSSION.

DR. C. A. MURRAY, MONCTON, N.B.

Mr. President, Ladies and Gentlemen: I feel, Sir, this is an unexpected honor and pleasure thrust upon me to open this

discussion on these two very instructive and well prepared papers.

“The proper field for Silicates,”

and “The proper field for Porcelain Inlays.”

The proper field for these two filling materials is certainly a broad and lengthy subject for discussion, and is one no doubt on which a great many of us will have different opinions as to their proper spheres. I have not any doubt there is not a practitioner here who has not been successful with either one or the other or both of these materials, and it is equally true we have had many failures, but it is through these failures and successes that we arrive at the degree of proficiency. The more we experiment and the harder we work towards obtaining that degree of proficiency, the greater degree of success will be the result.

In regard to the subject of silicates, there has been a great many different varieties on the market, and my experience has been that of the essayist, to eliminate them all, but one, and that one is “Asher’s Artificial Enamel,” which is the only one I consider worth discussing. Perhaps my non-success in those that I eliminated is in my inability to manipulate them, and not in the materials. As a general rule, I think the discoloration is more the fault of the operator than that of the cement. Different operators have different ways of manipulation, hence they must have different results. What we want is to adopt a method whereby each and every one of us can get the very best results the material is capable of producing. As to the test the essayist speaks of, I have had no experience, hence, I am not in a position to give an opinion.

The chemical compound mentioned is a very intricate question, and only a chemist is capable of dealing with this phase of the question, and even the most expert chemists know very little about the subject.

The dentist’s side of the question is to preserve these chemical bodies by keeping them well corked so as to take up no moisture from the air, or obtain any impurities while on the slab during the process of manipulation. In regard to the translucency, my experience has been, if I charge the liquid too heavily with the powder, a certain amount of the powder of the translucency is taken away. Great care should be exercised so as to get the proper amount of each, the proportions being as the essayist has said, about three of powder to one of the liquid.

In mixing, it is quite essential that both powder and liquid should be on the slab at the same time. Then draw a certain amount of the powder into all the liquid and so on until all the powder is absorbed and the desired constituency is reached, at the same time bringing every grain of powder into contact with the liquid so that the chemical reaction may be complete. The mass should be quite stiff and perfectly plastic and sticky.

Great importance should be attached to the proper manipu-

lation from the time of making the mixture until the final finishing of the filling. I cannot agree with the essayist in using a flattened orange-wood stick in inserting the mixture into the cavity; the stick I think absorbs a certain amount of the moisture from the cement and cannot be thoroughly packed against the walls and margins. I should think to use the different angled bone instruments would be preferable. The best slab to use is one of heavy glass. The spatula should be non-metallic, as the powder is of a gritty formation and in mixing there is a certain amount of the metal ground off, thus not only affecting the color, but altering the chemical composition. I think an agate spatula gives the best results. One thing must be strictly observed and that is, everything must be kept perfectly clean, slab and instruments free from any previous mixture. The liquid should maintain the original form, and I understand there is a liquid on the market at the present time which will do this. I would suggest that the liquid be examined before buying and see that it is perfectly clear.

But coming to the main point of my discussion, where these fillings are indicated, I must say they cannot be relied upon to withstand the stress when exposed to incisal corners or in contour restorations of bicuspid. Silicate fillings upon occlusal surfaces chip away at the margins, under the impact of mastication, for which reason they are not indicated for this class of filling.

Experience has taught me the proper field for these fillings is on the approximate and labial sides of the anterior teeth, and when the cavities are kept perfectly dry and the cement is skillfully used and properly finished, it makes a filling that will last for a long time.

The essayist has said these fillings are by no means perfect; that is true to a certain extent, but at the same time, the same may be said of the operator who performs with this material. When a failure occurs, instead of accepting this failure as a necessary feature of our work and trying to cultivate a philosophic disposition, I believe it would be a better conclusion to "get busy" and search for the cause of this failure, and when failures occur we should try to eliminate the cause.

Our ideal in these two filling materials should be to approach nature as near as possible, and this can be done with these two filling materials if they are placed in skillful hands. The essayist on Porcelain Inlay has said, there is no material that can approximate the appearance of the natural tooth as well as the Porcelain Inlay. This is true so long as the work is done by a skillful operator, but when in the hands of an experienced bungler there is no work that looks so hideous as a poor colored and ill-fitting Porcelain Inlay. I think why Porcelain Inlay is not used more universally is because of the many failures a person is credited with when they first commence to use it. But we should

not be discouraged, and should try and try until we make a thorough success of it. Our essayist says, one serious objection is the cost. I must take issue with him on this point and say, instead of it being an objection, I think it is a virtue, for we have so few operations where we can command a good stiff price, that we should cherish those we can. True there may be a limited number in the community who can afford to pay the price, but do it for these few and in time you will educate the people along these lines, and you will find patients coming to you for this work that you least expected. Where a Porcelain Inlay is indicated depends largely upon the operator. In the hands of an expert it has a very wide range. With beginners they should confine themselves to the anterior teeth. For the average operator they are indicated in nearly all the labial cavities of the laterals and cuspids in the upper and lower jaw and in the restoration of corners of the front teeth.

In selecting a cavity for Porcelain Inlay work the very best judgment, wisdom and common sense we possess should be used. Some operators take chances, hoping everything will come out all right. This I consider poor dentistry, and will leave you some day in an awkward position.

All cavities should afford the possibility of getting proper space and permit the proper preparation.

Other features of this paper might advantageously be brought out and prove interesting as well as instructive to us all, such as preparing cavity, selecting shade, making matrix, Baking, etching, and cementing, but time will not permit. I think it is a mistake to endeavour to cover so much ground in so short a time and not deal minutely with any one phase of this broad subject, for I consider books can be written and have been written on the subjects gone over here to-day.

In conclusion, let me again congratulate the essayists on their efforts, as we all have received more or less useful knowledge.

DR. A. A. BABCOCK, BRANTFORD.

There is no doubt in my mind that the compiler of the paper on this subject has voiced the sentiments, and not any too strongly at that, of many here present when he says, while he was sometimes doubtful as to the sphere of the silicate fillings, he had no doubt as to the sphere to which he would consign the manufacturer when he says his product is to be placed in all conceivable places. As it is through our failures that we learn wisdom, we must if we are to profit by our failures, classify them and distinguish those that are due to ourselves (that is faulty manipulation), and those that are due to the improper adjustment of the ingredients of a product. Now, after a few years of practice I am beginning to realize that while my intentions are good, that it is very easy for me to inadvertently make a slight mistake, which is disas-

trous, and also, that while the manufacturer's word must often be taken with a grain of salt, yet he is doing his best to produce for us the ideal filling, for which we are all yearning.

In order that our manipulation may not be faulty when we are trying a new mixture, it is due to the manufacturer that we follow closely his directions, of which there is usually a profusion.

I do not think as a rule you can improve upon the directions handed out by the manufacturer, although sometimes it is a little hard to take the dose, when after ten or fifteen years of mixing cements you are told you don't do it properly. So much for the manipulation.

Now, as regards the chemical combination of the mixture. First of all Dr. Ritchie tells us to test fluid for discoloration; and no doubt this is a wise precaution preliminary to using a cement, but it will in the present state in which we receive them be necessary to test them often. The manufacturers will even in some instances exchange a liquid if you have some that is old and not opened. Thus they acknowledge their instability. And thus if the liquid, which as the Dr. says is a modified form of phosphoric acid, will change chemically when hermetically sealed, what can we expect when we are frequently opening the bottle.

Giving these details and accepting the theory that these silicates of aluminum, calcium, etc., are to form the powders for us, where are we going to place this preparation when we have it mixed.

If it is translucent, insoluble, resists the force of mastication, does not alter in bulk, color or surface, has fair edge, strength and is adhesive, then in my estimation its sphere is anywhere and everywhere restoration is necessary in the form of a filling. Should you find sufficient of these properties uncertain or lacking so as to endanger the permanency of your work, then I would restrict its use to those localities where, owing to the inaccessibility of the cavity (without a considerable sacrifice of tooth structure), it was impossible to remove a matrix without distortion and the aesthetic position of the cavity required a restoration of the color of natural enamel. Just a few remarks or don'ts as regards mixing a cement. Don't unless you wish to spoil the setting, use a cold or damp slab. Many of us no doubt use a large cube of glass. We wish to mix some silicate cement. We must be careful that the surface of the slab is clean, so we go to the basin and wash off any remnants of cements of all kinds that are adhering, allowing the cold water to run freely over the glass to loosen the small particles, and the glass becomes very cold. Heat accelerates and cold retards any chemical combination, and thus we cause the trouble. I use one slab exclusively for silicate cements and give it extra attention. I prefer opal. Another thing; the silicate filling that you have to doctor with stones and vaseline

or cold butter is going to discolor and disintegrate. I have tried it to my heart's satisfaction and very nearly I might say, to my soul's damnation. You must contour and finish the edges of your filling while it is plastic, and better still, if under the celluloid strip. The silicic acid or silicon which imparts to the mixture its translucency and contributes to its insolubility, is a hard crystalline curved plate, which is hard enough to scratch glass, and when broken or ground exposes a granular surface, not unlike that which is often seen in a piece of crushed mineral. Now, when you begin to grind down a filling to form it to some particular shape, often it is hard, you remove this glazed surface of the crystal, and although you use coca butter and other lubricating substances you obtain a surface that as soon as the grease has been rubbed and dissolved off in the mouth, presents once more your granular surface, its protecting glaze removed and open to receive all kinds of stains that the oral cavity may be subjected to. In its unbroken crystalline state, silicic acid crystals are insoluble in most solutions. On the other hand I have an instance in which a silicate filling is doing good service in the mouth of an inveterate tobacco chewer, and remaining comparatively free from the nicotine stain. Much more so, than the tooth in which it was inserted. This filling has been in about a year, and was burnished and moulded under a strip of celluloid.

Another thing, don't try to add a little more fluid to increase the amount of a partly mixed batch of cement. Sometimes we would like it a little thinner than it is apparently going to be with the amount of powder we have incorporated. This won't do, for you are trying to break up and start over a chemical reaction, which is really an impossibility and will result disastrously to your mixture.

Acidity reaction after six months. Different conditions under which a manufacturer experiments. A piece of mixture will remain a long time in your cabinet, but will it stay so in the mouth.

DR. RITCHIE: Mr. Chairman, I don't think there is any necessity for my saying anything further. I couldn't hear what Dr. Babcock was saying in his discussion, but with regard to Dr. Murray's discussion, he followed practically along the lines I laid down, with the exception of a few minor differences, and of course, as you know, there are always little differences that will creep in in the way of doing things; there are different ways of going about things, and of course the little minor differences do not matter very much. I thank you very much.

DR. CLARK: Mr. Chairman, I had a call from Watt's Wholesale gold man, and he said that these delicate inlays were simply a passing fad, and already there were signs of them disappearing, and there was going to be a rush for foil gold, etc., as before, and he seemed to feel I didn't take in his statement very quickly, so he pointed to the way porcelain had gone out. I took issue with

him there: I maintained porcelain was still a factor to be considered, and just as we were talking, I don't know which of us was making the most ground, in walked a friend of mine who was a patient, and I was intimate enough to ask him if I might let this gentleman look into his mouth. I asked him how long ago it was that a certain inlay and a big corner on one of his centrals had been made and he said fifteen years, and this man said he wouldn't say any more. But today it made me feel that Watts' man was pretty nearly right, that porcelain must be a back number because it doesn't seem to arouse very much interest.

The last gentleman, Dr. Murray, took issue with me on considering the cost of porcelain as an objection: the very fact of its cost was a reason why we should put them in every chance we got. But the trouble is that where it costs the patient a little money it consequently costs the operator a great deal of time, and he does not come out much better in the end; as a matter of fact, my experience has been he comes out a great deal worse.

The first essayist spoke about the importance of following the rules that were given by the manufacturers with regard to silicate fillings. I have been impressed by one thing up stairs, and that is that what the clever demonstrator up there is teaching today was rank heresy a year ago, according to the demonstrator that the same company had here, so I am afraid I will have to take issue there and say we have got to make our own rules. There has been so little said about porcelain, there is nothing for me to reply to. (Applause).

“WHAT USE WE ARE MAKING OF THE CASTING PROCESS.”

DR. W. R. GREENE, OTTAWA, ONT.

Read before the Canadian and Ontario Dental Association, May 31, June 1,2,3, 1910, Toronto, Can.

By casting process, we refer to casts made in moulds, formed by disappearing wax models, by means of pressure applied to the molten metal to force it into the mould.

This is a vast subject, and will, I am sure, bring forth considerable discussion, and many interesting and useful hints and suggestions not touched upon in this paper.

We will look at the subject under the following heads:—

- 1st.—The casting process as applied to gold inlay filling.
- 2nd.— “ “ “ “ “ to crown work
- 3rd.— “ “ “ “ “ to bridge work.
- 4th.— “ “ “ “ “ to plate work.

The cast inlay filling has come as one of the greatest boons to dentistry of the past decade. I am a firm believer in its use as the best possible filling in a great many cavities which are pre-

sented to us for treatment. First, because it can be inserted with so little discomfort to the patient, and consequently, more pleasantly to the operator. It eliminates the necessity of the dam and lacerating ligature, and gives the patient a rest from the tedious pounding required in foil filling. Second, the presence of cement in contact with the tooth tissue is a decided advantage, as I think it will be generally admitted that cement is the most efficient tooth preserver we have, and the nicely adjusted gold inlay gives the necessary permanency lacking in the cement itself. It will also be admitted that cement is the best pulp protector we have. Third, the cast gold filling is more dense than the foil filling can possibly be, and if the cast is made of 22 k. gold, the filling is much harder than the pure gold, to withstand the severe strain required of fillings in the occlusal surfaces of teeth.

However, after all this has been said, I cannot agree with those enthusiasts who say that an inlay can and should be inserted wherever a gold filling is indicated. There still remains, and will remain, a place for the foil filling. In many cases to attempt to insert an inlay filling would necessitate the unnecessary cutting away of sound tooth tissue, and consequently making too great a display of gold.

Gold inlays are especially indicated in the cutting edges of the anterior teeth, where the posterior ones are missing, in large contour fillings, in molars and bicuspid, and they are a special benediction where the cavity exists on the labial or buccal surface and extends beyond the gingival margin, also where there is much loss of tissue from decay, and where thin but strong margins are required.

The preparation of the cavity has been so much discussed and so nicely described by Drs. Johnson, Black and others, that I think there is a consensus of opinion as to the general form of cavity, viz:— square base, walls almost parallel to each other and with the axis of the tooth, and so formed that the filling locks into the cavity when the pressure of the occluding teeth is brought to bear upon it.

The wax used is an important feature in inlay work. It should be sufficiently hard and brittle that it will not change its shape, when chilled, in being removed from the cavity. Such wax must be softened in water, as the flame will only melt the surface without softening the centre.

When the cavity is formed and the wax softened in warm water and moulded between the thumb and finger to somewhat conform to the shape of the cavity, the cavity is smeared with glycerine and the wax taken from the warm water and forced into the cavity and rounded over the edges with the thumb. The patient is then instructed to bite and chew into the wax. This gives the imprint in the wax of the occluding teeth in their various positions. The wax is then carefully carved and trimmed to re-

store the contour, contact, grooves, etc., and smoothed by means of a pledget of cotton moistened in glycerine, and tape used proximally. The sprue wire is then heated and inserted into the wax model. The wax is now chilled, removed, invested and cast.

Where the cavity involves a considerable extent of tooth tissue, and the wax model is necessarily large, it may, and I believe should be thinned out from the back, by means of Fletcher's wax trimmer. This gives a filling just as perfectly adapted to the walls with less gold and more cement over the pulp, all of which are desirable features.

CROWN WORK.—The casting process comes to our aid again in crown work. By its use we can secure an adaptation and articulation which will satisfy the most exacting, and with a facility which will astonish.

There is no longer any necessity for the tedious building up of porcelain crowns for the anterior ten teeth, since stronger, and I believe more artistic crowns can be made by the use of detachable pin crowns, with a gold base cast about the pin, to fit accurately between the root and the crown. We all know where the weak spot is in the porcelain crowns constructed with long pin facings. No matter how careful and skillful the operator may be, there is liable to be a weakness about the platinum post, which sooner or later manifests itself by a fracture, the platinum pin acting as the line of cleavage.

To mount a detachable porcelain crown by this method, the root is prepared in the ordinary way and the crown is ground to fit the root as accurately as possible, on the labial aspect, but lingually it is well to leave space for a sufficient thickness of wax to insert the sprue wire. The pin may be either the German silver or iridioplatinum. I prefer the latter, as the gold adheres to it better, and the heat tends to take the temper from the German silver, leaving it too yielding. Melt a little wax around the pin at the juncture of the root and crown, to make sure that the wax will adhere. After smearing the root and the crown with glycerine, place the pin in position in the root, put softened wax around the pin and over the root and then force the crown to place. After trimming to suit, the whole is chilled with cold water and the crown is removed; then the pin with wax cap. The sprue wire is inserted and pin with adhering wax invested. This gives a pin with a gold cap firmly attached, which fits the root perfectly, and gives on its reverse surface an accurate seat for the crown. The result is a porcelain crown perfectly adapted to the root and not having been subjected to heat, and having no platinum baked into it. It has a strength that cannot be assured by the old method, and the artistic effect is beyond dispute.

If the root is frail and you think a band is desirable, it is easy to adjust a band to the root in the ordinary way and mould your wax into the band. The band will not likely come from the

root with the pin and wax, but it has left its imprint in the wax, so it may be removed from the root and placed in its impression in the wax and invested and cast with it.

By this method, roots which are considerably hollowed out by decay, may be restored and made to support a crown. The wax which surrounds the pin may be forced into the enlarged opening in the root and when cast, forms a kind of inlay filling as well as pin. This eliminates the large quantity of cement which would otherwise be present, thus increasing the stability and permanency.

Some advocate waxing an ordinary long pin tooth or a rubber tooth, or even a diatonic tooth to a pin in place on the root, and by this means casting a richmond crown complete. This has been accomplished with apparent success, but it seems to me like inviting trouble, as small checks are bound to appear where the gold is cast against the porcelain. These checks, though unnoticed, leave a weakness which sooner or later result in the loss of the facing.

GOLD CROWNS.—The construction of gold shell crowns is considerably simplified by means of the casting process. The root is prepared and the band fitted in the usual manner. The band may be left long enough to almost touch the occluding teeth. After the band has been given its proper adaptation to the adjacent teeth, contoured, etc., wax is heated and forced into it, sufficient being used so that the wax stands well above the band. The patient is then instructed to bite and chew into the wax so that it receives the imprint of the opposing teeth in their various relations. The band with the wax cap is then removed, the wax is trimmed and if desired, may be built over the sides of the band to improve contour. Any peculiarity desired may be formed in the wax and will be faithfully reproduced in the cast gold. If the root is much broken down, leaving too great a thickness of wax, Fletcher's wax sucker is again brought into operation and the wax thinned out from the inside of the crown. The sprue wire is then inserted into some thick part of the wax where it will not interfere with the articulation. When the casting is complete, if there is any suspicion that the union is not perfect between the band and the cast portion of the crown, it is but the work of a minute to run a small portion of solder around. The joint is so perfect that a very small portion of solder will suffice.

These two types of crowns will, with few exceptions, meet all the requirements of ordinary practice.

By casting the cap for a gold crown, we do not require any impressions, bite, articulation, dies, swaging, etc., thus saving much time and securing better results.

We will now consider casting as applied to bridge work. For anchorage in bridge work, we have the choice of almost innumerable methods of attachment, but for all ordinary cases, the inlay,

the porcelain crown with cast base, and the gold crown, will give all the anchorage required.

The inlay to support a bridge must have pins, or in the case of a dead or pulpless tooth, one good pin into the pulp chamber, and where the conditions are favorable, the inlay is preferable to the crown. The porcelain crown with gold base should have some of the porcelain ground from the side, so that the gold may extend some distance from the gum margin to allow for attachment. The gold crown when indicated makes as good an anchorage for a fixed bridge as could be desired.

After the kind of anchorage has been determined, the next consideration is the nature of the dummies to be used in replacing the lost teeth. Here, as elsewhere, in dentistry, the judgment of the operator is quite as important as his skill.

For those who believe in the saddle bridge, a very artistic and strong bridge can be made by casting the base and mounting detachable crowns.

You have your model and bite, with abutments in place. Smear the plaster model with glycerine and place sufficient wax on the cast between the abutments. Then take suitable detachable porcelain crowns, smear them with glycerine and insert iridio-platinum pins into the crowns, and force them to place in the wax. When the bite is adjusted to suit and the wax moulded into required shape, the crowns are removed, leaving the pins in the wax. Now, remove the wax with adhering pins and secure a cast in gold. The gold cast is then replaced on the model and soldered to the abutments. By soldering to the abutments after, rather than casting against them, the objectionable feature of shrinkage is largely eliminated. The porcelain is then cemented in place and not having been subjected to heat and having no platinum baked in to them, the bridge is thoroughly reliable, and I believe as sanitary as any other style of bridge.

The so-called sanitary bridge can be constructed by the casting process much quicker and with a more perfect articulation than by the old method of flowing solder. This is accomplished by building plaster on the model, between the abutments, and trimming it so as to give the required thickness of gold. Smear with glycerine and the articulation is secured directly into the wax. Removable facings should be used, as gold should never be cast against porcelain, nor even against facings protected by gold backings.

In any form of bridge, the gold part suspended between the abutments, may with advantage be formed in wax and cast.

I believe we are shortly to have a detachable pin facing on the market, which, if predictions prove true, will be the ideal facing for cast bridge work, especially in replacing the anterior teeth, where we frequently require a thin, but strong facing.

When we come to the realm of platework, the casting process

is not entirely satisfactory, so far as gold plates are concerned. The gold when cast has not the temper required, and in order to have the plate sufficiently rigid, it must be too heavy.

Plates of aluminum or its alloys may be cast quite satisfactorily, as the metal may be made thick where strength is required, and aluminum is much more rigid when cast than gold. Loops or ridges may be cast on the plate for the retention of the rubber attachment. The aluminum may also be cast about gold clasps, holding them quite firmly. I would not advise casting even aluminum against the porcelain.

The range of usefulness of the casting process is as yet unknown, but it has already proven to be of very great assistance to the Dental Profession.

Anything, of which an exact pattern can be obtained in wax, may be faithfully reproduced in metal by the casting process. Any dentist who does not adopt the use of the casting process is denying himself and his patients a comfort and service which he owes. However, we must avoid running to extremes, and ever remember in all operations in dentistry, we must use our best judgment in deciding the nature of the operation and the methods to be used.

PYOCYANASE.

[A new remedy for the treatment of Pyorrhea Alveolaris, Stomatitis and kindred affections, by Dr. Carl Ruttloff, from the *Zahntechnische Reform*].

TRANSLATED BY CARL E. KLOTZ, D.D.S., ST. CATHARINES, ONT.

A new preparation has been placed on the market by the Serum Works and Institute of Bacterio Therapeutics, of Dresden Saxon, Germany, under the name of Pyocyanase, which appears to fill a long felt want in the Dental Materia Medica.

The effective treatment of Alveolaris Pyorrhea, Stomatitis, Gingivitis and kindred diseases of the mouth, have presented many difficulties to the dental practitioner, before which he stood helpless with the usual therapeutical remedies. Pyocyanase appears to be a remedy that not only simplifies the therapeutic treatment, but promises an effective cure.

According to "Emmerich and Loew," Pyocyanase is obtained from a liquid culture of *Bacillus Pyocanes* several weeks old, through germ separating, filtration and further, through a condensing in vacuum and clarifying. It appears as a dark colored greenish fluorescent liquid, with a pretty high specific gravity and a peculiar jasmine like odor.

Its strong bactericidal power is evident, that notwithstanding a culture of several million cubic centimetres, pneumococcus

are completely destroyed in three minutes. Diphtheria-bacillus and streptococcus are completely destroyed in ten minutes. Gonococcus, are completely destroyed in five minutes. Vibrio-cholerae, destroyed in five minutes. Dysentery-bacillus, destroyed in three hours. Staphylococcus and Typhoid-bacillus destroyed in twenty-four hours. While a diluted solution of 1-40 checks markedly the development of staphylococcus and 1-125 that of diphtheria-bacilla, notwithstanding the strong disinfectant power of pyocyanase, it is perfectly harmless, and for that reason, very adaptable for use in the oral cavity.

This new remedy has been used very successfully in the treatment of diphtheria, to support the serum in cases of extended membrane formation, in grippe epidemics, cerebro spinal meningitis, scarlet fever, etc.

The reports of the gratifying success of pyocyanase led Dr. Reich to experiment with it in dentistry, and his results presented to a convention of dentists, held in Brandenburg, induced me to try the preparation in my own practice, and can state that in the treatment of different cases of pyorrhea and stomatitis, it has never failed me. After two or three applications a decided improvement could be noticed, and from reports received from patients whom I had treated with it, prove it to have effected a permanent cure.

In March, 1909, a lady about 42 years of age came to my office with a serious case of pyorrhea in the six lower anterior teeth. Her own dentist having told her that it would be useless to attempt a cure, and nothing could be done but to extract the teeth, but to this she objected. This was in 1907, two years before she came to my office. When I examined her mouth I found a typical case of chronic alveolar pyorrhea. The teeth were very loose, percussion painful, the gums highly inflamed, a quantity of calcareous deposit on the teeth, and on pressure a copious flow of pus. After the fifth treatment there was a great improvement, the teeth became firmer and no discharge of pus. The improvement has continued and the teeth are now almost as firm as ever.

Also in cases of stomatitis, mercurialis, pyocyanase has done good service, that I now use it with patients as a prophylactic, that are sent to me by physicians, prior to an inunction treatment. I also had good results in a case of lead poisoning, when the case has extended to alveolar necrosis of the left lower cuspid, lateral and central. In this case also the discharge of pus and the pain ceased after a few treatments and the teeth were saved.

Before giving my mode of treatment with pyocyanase, I will cite one more case, which is of particular interest and stated by Dr. Reich in his publication, "The Nature of Pyocyanase and the use of it in different forms of Gingivitis and Stomatitis," and which may be considered as difficult a case to treat as ever came into the hands of a dentist.

The patient, a bookbinder by trade, 42 years of age, with whom I was personally acquainted, as he had been one of my patients some time ago, and had treated him, but without success. In the years 1904 to 1906, his gums were loosened and bled at the slightest touch, the teeth were also loose and covered with a slimy and smeary deposit. Physicians whom he had consulted were not of the same opinion in their diagnosis. As the patient had contracted lues in his youth, he was treated with an anti lues treatment, while others diagnosed it a case of metal poisoning. He was treated alternately with chronic acid and with mouth washes, baths and juniper berries, still the disease got worse from day to day. Finally he was sent to Dr. Reich for dental treatment, who found his mouth in a very deplorable condition. The gums were of a deep red color and spongy and covered with a thick purulent fibrous exudation, the interdental gingiva could be separated quite a distance from the teeth, shreds of necrotic fibrous tissue peeled off from the mucous membrane of the cheek and palate, and in some places the bone was exposed. The tongue showed deep purulent fissures. The molars made deep impressions in the cheek, which caused ulceration, and the lips also has several ulcers. The teeth on the right side particularly were so loose that they could almost be removed with the fingers. In the morning the mouth was fairly pasted together by the exudated pus, which had hardened to a crust at the corners of the mouth. The faetor ex ore was unbearable.

After the first pyocyanase treatment there was a decided improvement and in several months later a complete cure was effected, with the exception of several teeth that were too far gone when treatment began. The rest are all firm again. The mucous membrane and tongue have their normal appearance and his general health has improved.

In this case the pyocyanase therapy has done wonders, but on account of the gravity of the disease it required a number of months of anxious treatment to effect a cure.

It certainly must not be expected that every case of alveolar pyorrhea or stomatitis can be immediately relieved, unless the whole of the oral cavity is given a thorough examination and put in a proper condition. This brings me to the point of explaining my mode of treatment.

The first step is to thoroughly cleanse the oral cavity and remove every trace of deposit from the teeth, without this, no subsequent treatment is of any use. After thoroughly disinfecting the mouth with washing and rinsing with peroxide of hydrogen, the teeth to be treated are again washed with a 10 per cent. solution of peroxide of hydrogen and kept dry with rolls of absorbent cotton and lintine. Dr. Reich recommended at this stage to drop a 10 per cent. solution of peroxide of hydrogen into the pockets with a drop pincette and work it down with a small

but blunt instrument and dry absolute with alcohol. Now, place with a drop pincette the concentrated pyocyanase into the pockets with a suitable instrument, work it down to the bottom and leave it there for several minutes, without the saliva coming in contact with it, and not to rinse the mouth immediately after the application, so as not to dilute the drug, as it is very much more effective when used in full strength. Patients will not complain about the taste or odor of it. This treatment is repeated when necessary.

From the foregoing, it may be seen that the pyocyanase therapy is a valuable factor in the treatment of all the diseases of the oral cavity. Besides, the splendid bactericidal property of this remedy it is of great value and importance to the dental profession, on account of it being perfectly harmless and is non-escharotic.

ELECTRICITY IN DENTISTRY.

BY J. W. LEIGHTON.

Graduate of the Faculty of Applied Science, University of Toronto.

CHAPTER VI.

ELECTRIC DENTAL ENGINE.

In the preceding chapters the general phenomena of electricity has been outlined with a view to the better understanding of its actions, in the more practical application of its uses in dentistry. The operation of the electric motor is similar to that of the dynamo, which was discussed in Chapter 4, except that the current is applied to the terminals of the machine, causing the armature to revolve; while in the dynamo, the turning of the armature produces an electric current, each being the reverse of the other. The principal parts of an electric motor are the field windings, which magnetize the iron frame; the armature, which consists (in the direct current type) of a commutator and winding, wound upon the iron core; and a shaft journaled in bearings to support the armature.

The electric dental engine consists simply of an electric motor, conveniently supported and arranged to drive the burs and discs, which were previously driven by foot treadle machines, known as the foot engine. The advantages possessed by the electric engine are self evident. At the time they were first introduced, some fifteen years ago, they were considered to be more or less of a luxury or toy, but their universal adoption proves that they are indispensable to the busy practitioner, and one has only to ask a user to appreciate how much this is the case.

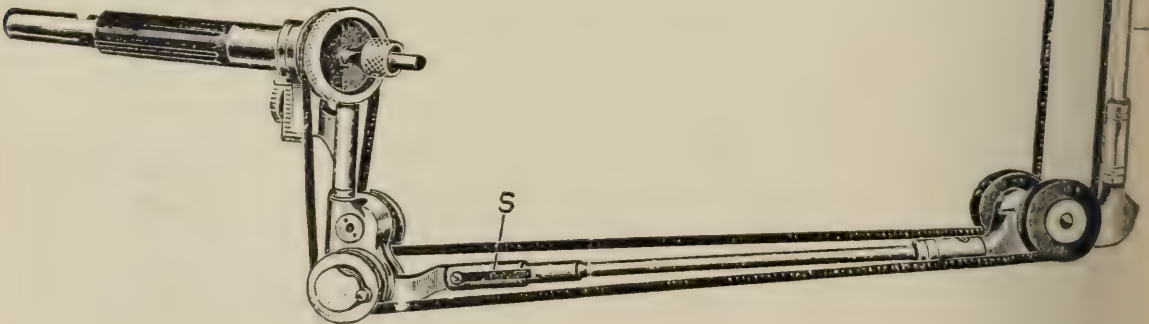
High speed, ease of operation and control, comfort and convenience can only be obtained by the use of the electric engine.

DESIGN.

There are many makes and styles of electric dental engines, and the question of most interest to intending purchasers is what should constitute a good engine. There are three features that are most prominent, when considering its operation. First, the method of support. Second, the method of drive. Third, the method of control.

METHOD OF SUPPORT.

There seems to be a diversity of opinion as to which of the three methods produced by manufacturers gives the best results. Each one undoubtedly has its advantages. The method by which the engine is supported by a cable, such that the engine is free to be swung up and down, or around in a circle, seems to fill all the uses required of a dental engine, with the fewest disadvantages. It is more flexible and more convenient in operation, and, for the same power of a machine, it operates smoother as the vibration is taken up in the suspending cable. The second type is the one by which the engine is supported on the wall, on a long telescoping arm, which reaches to the chair. The chief disadvantage of this type of engine is the long belt, which invariably gives trouble in loss of power and stretching of the belt. It is also difficult to operate, owing to the inconvenience caused by the long arm, and there is also much time lost in reaching for the handpiece. The third, and most recent type of the electric motor is supported on the end of a folding bracket which folds in close to the wall. This bracket, while very ingenious, was undoubtedly placed upon the market by a manufacturer who had only the wall type of engine and recognized the desirability of a shorter arm and drive, but this style is more susceptible to noise than the suspended type, owing to the support being rigid.



THE DRIVE.

There are two methods of drive: the all-cord and the cable. The former consists of a light flexible arm supporting pulleys, over which a small round linen belt transmits the power from the motor to the hand-piece. This method, which was invented several years ago, is now looked upon more favorably than the cable drive. The torque given to the burr is regular, with the result that the operator or the patient does not feel any vibration or jumping of

the instrument on the tooth. On the other hand, the cable, which consists of a spiral spring, operating through a sleeve, has a tendency to wind, causing an annoying vibration to the burr when in operation. This is generally called, "backlash." It is the general consensus of opinion that after getting used to the all-cord drive, by far the best results are obtained by its use.

CONTROL.

All makes of electric dental engines are controlled by means of a rheostat placed upon the floor and operated by a foot lever. There is a slight difference only in the operation of the lever; In one instance the lever is free to fly back to the neutral position when the operator removes his foot, while in another, the lever remains at any speed and necessitates the throwing back of the lever by the foot to turn the current off. It is essential that the electric engine be under the perfect control of the operator, and the first method seems to give this control best. It might appear awkward to be compelled to hold the foot against the lever continuously, but we find on consulting users, that this is not the case and does not in any way limit the operations of the dentist.

DESIGN.

An electric engine must be finely finished and of good appearance in order to be in keeping with its surroundings in a dental office. But more essential to the good operation of an engine are the design, workmanship and material. In all good engines, the important things are usually well taken care of, but it is the small details that give most trouble as a rule. To the average practitioner is impossible that he be sufficiently well versed to discriminate between good and poor workmanship, and it is only by the use of micrometer measurements that this could be judged at all. He will then, to a great extent, have to be governed by constructive details. Some of these we might point out. In a dental engine there are at least four speeds forward and from two to four reverse, and on this account it is necessary to have many wires and connections. A loose wire means lost power or irregular operation, so that to insure against this source of trouble the greatest care should be exercised in all joints, and it is not sufficient to have a wire bound round a screw, as the constant moving of the apparatus may loosen it. All wires should be mechanically supported and then soldered, soldering alone not being sufficient. The most approved method yet devised seems to be that by which the wire is bound around a brass eyelet, and the eyelet screwed to the contact.

There is a vast difference in the designs of different makes of controllers. The controller, being placed upon the floor, is subject to the action of dust and dirt, and therefore should be dust-proof. Those controllers which have an opening by which the dust and dirt can collect on the working contacts, are not well

designed and are usually a source of trouble. It is well then, to examine the controller and see that it is dustproof in this respect.

The insulation should consist of the best materials and as far as possible those that are indestructible. Mica, lavite and slate being the best.

The shaft should be made of a fine grade of tool steel, and the bearings of a good bearing metal, such as tobin bronze. The shaft should be ground accurately to size and the play in the bearings should not exceed one one-thousandth of an inch. All parts of the machine should be easily accessible, and the parts made such that when they are taken out, can be put back again without danger of being placed in wrong positions.

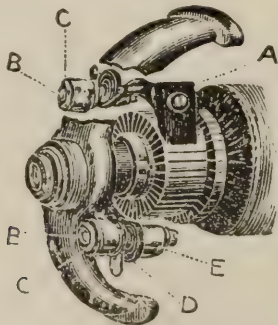
THE CARE OF AN ELECTRIC ENGINE.

Too much cannot be said in favor of the proper oiling of the motor bearings. It never seems to occur to the dentist that an engine requires care, and particularly, oil. A great amount of grease or dirty oil, if allowed to collect around the inside, ends of the bearings and on the copper commutator and brushes, is the greatest detriment to the successful running of the motor. Consequently it is advisable that just enough oil be used to avoid the above conditions. There can be no set rule as to just the proper amount of oil, but careful observation soon teaches this.

A few drops of benzine or alcohol put into the oil cups every three months is a splendid practice. This cleans them out thoroughly. It is not good practice to depend upon the office girl or boy to look after the motor.

Insufficient power and irregular speed are sure signs of excessive oil on the commutator and brushes. Clean the commutator by holding a cloth moistened with alcohol or benzine upon it, while the armature is in motion. A little oil on the commutator is a good thing. It prevents the brushes from wearing too fast and also prevents noise. The use of improper oil will cause a great reduction in the power of the motor, and it is well to purchase only the oil supplied by the manufacturer of the engine.

The carbon brushes should be inspected every month or so, to see if they have worn down. The accompanying diagram



illustrates the brushes resting on the commutator. On this type of engine, to put on new carbon brushes, screw "A" is loosened

and the brush slipped out. After the new brushes are in place, cut a piece of No. "O" sandpaper 3-8 inch wide and 3-inches long. Place this, (with the smooth side next the commutator) between the commutator and carbon brush; then work it back and forth a few times till the carbon is ground off to exactly fit the surface of the commutator. Press down on the brushes a little, with the tips of the fingers when sandpapering them. Carbon brushes should be renewed before the brass lever "E" on which they are fastened, touches the commutator.

The controller should be opened about every six months and the contacts examined. To avoid wear, the plates must always have a small amount of vaseline on them.

The all-cord type engine is driven by a belt as shown in accompanying sketch. It is highly important to run the belt as loosely as possible, otherwise it will interfere with the free use of the handpiece. The pulleys are so constructed that it is an advantage to run the belt loose. To take up slack in the belt, loosen screw "D" slightly and pull the lower part of the arm down, and then tighten the screw again. To put the belt on, start it over the driving pulley "P" of the motor, and then draw it forward over both blued steel pulleys; hold the handpiece in the hand so that the two small guide pulleys hang downwards; put the belt around the handpiece pulley and then over the two small guide pulleys. If the belt is too short or too long, adjust it as per instructions above until the tension is right.

Sketch is drawn with Doriot handpiece attached, but a wrist joint may be obtained so that a No. 7 handpiece can be used.

In the next issue the electric lathe will be discussed.

Proceedings of Dental Societies

WESTERN CANADA

DISCUSSION OF THE SECRETARY'S REPORT.

The Secretary's report was not written and consequently does not appear in this report.

DR. C. H. WALSH thought it would be a good idea to have the report of the proceedings printed and distributed to the members. The report last year was not very satisfactory.

DR. G. C. MATHISON said that there were a great many mistakes in English in last year's report, and in many places the speakers' meaning was not clear.

THE SECRETARY said there was a committee appointed to revise the stenographers report. Some attempt was made to do this, but the report was received so late and was so unsatisfactory that it seemed impossible to get a good report from the stenographers manuscript. We have changed reporters this year and do not anticipate any difficulty. It would mean a great deal of additional expense to have the proceedings published in pamphlet form by the Society. If there were enough here, who wanted the minutes published and were willing to pay for it, it might be done.

DR. MANLEY BOWLES said he was on the committee with Dr. Greenfield to revise the stenographers report but they found it so bad that they decided to send it to Dr. Webster the Editor of the Dominion Dental Journal, and ask him to make the best he could out of it. It was about the only thing we could do. He said that the Dominion Dental Journal published in pamphlet form the proceedings of the Ontario Dental Society and the Canadian Dental Association, and distributed them to the members free of charge, when the report was supplied them. He felt sure they would do the same for the Dental Society of Western Canada, if they were asked.

(EDITOR). The Secretary has since made arrangements with the publishers of the Dominion Dental Journal to have the proceedings issued in pamphlet form and sent to each member of the Society. These will be sent out in a few days.

CARE OF SCHOOL CHILDREN'S TEETH.

DR. BUSH: I may say in connection with this, that personally I corresponded with a great many cities, perhaps all of the principal cities of Canada and many of the principal cities in the United States. The majority of them seemed to be in about the same position as we are ourselves, desiring to do something along that line. The City of Cleveland, Ohio, I believe, is doing splendid work along this line. As far as I can find out, it is the

only one that is working quite satisfactorily. The City of Chicago, is doing practically nothing, I got a reply just a short time ago from Montreal, and they hope to have legislation introduced in the civic matters this next month.

It is also curious to note, that I got a letter from the President of the Oral Prophylactic Association, asking what we were doing along this line, (our letters must have crossed), as he wished to bring in a report to the Canadian Dental Association of what the various cities in Canada were doing.

The City of Toronto is very little better off than ourselves at the present time.

Therefore, I think, we should not let this drop. We should be among the first to have this matter in working order, and it would be wise to have a Committee, or else hand it over to a Committee of either the City or Provincial authorities. There would be an advantage, possibly in it being handed over to the City organizations. That might be a matter to be discussed here.

It was moved and seconded, that the report be adopted. Motion carried.

DR. C. H. WEAGANT: Mr. President and Gentlemen: At the time this question was up last year, I took a deep interest in it and have, in the meantime, in my own way done what I could along the line of finding out what has been done in other places. I just wish to refer to two cities from which I got a report. I am not sure whether Dr. Bush did, or not; he didn't mention them.

As a result of the examination in Halifax, N.S., nearly 5,000 children were examined. The average age was ten. One out of five only, had sound molars. One out of five had irregularities; that is, teeth misplaced through inattention at the time of cutting of the teeth. One out of fourteen were mouth breathers; there were thirteen thousand decayed teeth found in the mouths of children in the schools; 650 pupils only, out of the 5,000 had sound teeth; only 193 had received attention by a dentist; 2,691 were recommended for such dental attention.

I found out, that in the City of Hamilton, Ont., 75 per cent. of the school children had decayed permanent molars; 501 in seven schools had defective teeth.

Now, Sir, it appears to me, that in view of some of these things that we have been able to discover that we should not sit back and wait for other cities, because they are not taking the initiative. We should take every step we can and do it right away and do it ourselves, and I am strongly in favor of a committee being appointed immediately to look further into this matter and take some radical steps.

I would advise that steps be taken to give lectures to every Normal School class in the Province of Manitoba, from time to time as they come up to the Normal School. I would be prepared to submit what I could, in the shape of lectures, to the Committee

to be revised and delivered properly and in good shape to the Normal Class. I believe that the nurses in training in every Hospital in Manitoba should receive instruction from this Association, and there are other institutions that should receive instruction. I believe the school children themselves in the public schools should all receive attention from this Association, in the shape of lecturers.

DR. MANLY BOWLES: Mr. President, in the discussion opened by Dr. Weagant, I agree with most of what he says. I agree as to the necessity of doing something, as I think we all do, but I doubt very much, if this Society can do any more than what Dr. Bush in his report recommends, for this reason: We extend from Fort William to the Rocky Mountains; we include four provinces. This Society has no control over any one province.

Dr. Bush recommends that it be given to either the City or the Provincial authorities to deal with. Myself, I think, that it should be given to the provincial authorities, for this reason, that some of the cities, some of the towns so far as I know, have no Dental Association. In the City of Winnipeg, up until lately we did not have a general Society of the dentists. Now, if it was given to the provincial authorities, then, I think it is for them to pass it on to the cities that have those societies and I think, I would move an amendment to that report, that the words "or City authorities" be struck out and that it be given to the Provincial authorities. I think that is all that this Society has power to do, and if we pass that report "the provincial or city authorities," then it is given to neither one particularly, but if we give it to one or the other particularly, then, it is up to them to see that something is done and for myself, I move that it be given to the provincial authorities.

THE PRESIDENT: I might state, Dr. Bowles, that this is not a motion; it is simply a recommendation which would require a motion to dispose of it and your motion will not be an amendment.

DR. E. M. DOYLE: I haven't much to say on this subject. It is a question that we all know the need of, and I think it is high time that every province and every city in the West should take action in some way or other. If we have any school children we are bound to let the parents know in what condition they are, and recommended them to have some care taken of them. I think it is a matter that the Provincial Dental Association should deal with separately. We could not get any legislation here at all over the different provinces.

DR. HOWES: I should just like to ask: Does this motion mean that the matter is simply to be handed over to the provincial authorities to do something or nothing, as they wish, or is a Committee from this Society to be appointed to see that they do something?

THE PRESIDENT: As I understand, Doctor, I think the motion

is, that it be referred to the several provincial Societies. Is that the motion, Dr. Bowles? Is that what you mean.

DR. BOWLES: That was my motion.

DR. CHRISTIE: Mr. President, if it is taken up as the Western Society, then it would mean Dominion Legislation and not Provincial Legislation, I imagine. I cannot see anything for it, but that a committee should be formed for Manitoba, one for Alberta and one for Saskatchewan; probably, as we have members from Ontario we would have to embody one for Ontario to reach the different Legislatures. My idea in regard to Manitoba alone, would be for it to be taken up at the hands of this Society and handed over to the Winnipeg Odontographic Society and in that case they could either look to the Manitoba Legislature or the City School Board Trustees. As far as handing it over to one of the Legislatures is concerned, it would only be for that province alone; they would have absolutely nothing to do with the Alberta Legislature or the Saskatchewan Legislature.

I think the proper thing to do in such a case, is for different committees to be formed for the different provinces, provided that you make up your mind to go after the Provincial Legislature, otherwise, if it is to be more of a city ordinance, then it is not by any means as far reaching in its scope. For instances, we would have Portage la Prairie and Brandon and Souris and many of the larger towns in Manitoba without school protection, in regard to examination of teeth and Dr. Bowles' idea, is very much the same in regard to handing it over to the Manitoba Legislature here. If we take it up as a whole body I can see no way out of it except, to send it to the Dominion Parliament.

THE PRESIDENT: I may say, that the educational laws of this Dominion are, that the Dominion have no say in the Province in this respect; the Provincial Governments control their own educational laws, so if you took it up as a body before the Dominion Parliament you would not accomplish very much; they would just refer you back to your several provinces.

DR. DOYLE seconds Dr. Bowles' motion.

DR. C. H. WALSH: Before you put that motion, Mr. President, I do not think anybody reading our journals can fail to notice that this is a question that is agitating the minds, both of the public and the Dental Profession all over the country, both in Canada and on the other side of the line. It is all right to refer this question to committees, to carry it forward, put it to the legislature, etc. What are we prepared to do, to carry this thing through individually? How is Portage la Prairie going to handle it? Edmonton, and a dozen other cities. My own opinion is, granting the point that it should be done, but speaking for Winnipeg how are we going to handle this? Let us leave theory and come down to practice. We must have a clinic. I myself, do not think it is possible for us in this city to handle this question

properly and do the work properly until the University question is in a more settled state than it is. You all know the status of it. We are looking forward to the day when we will have a fully organized State University. Of course, that is a matter of opinion, but a University anyway in which all the higher branches of education will be on, we will say, an equal footing. We shall have a teaching body then and a clinic then and I do not think the time is a hundred years off, but I do not think that we, in Winnipeg can handle that question properly until such time as we do have a teaching body and a public clinic of some kind. That is only from the City standpoint. Let us hear from some of the men outside; how would they handle it in the cities and towns in the West, assuming the Legislatures say: "Yes, it is a good thing, go ahead?"

DR. J. P. BANNING: Mr. President; it seems to me we are getting a little confused in regard to this issue. As near as I can gather from reading the discussions of papers, before Societies in different parts of America the work is being undertaken by Societies voluntarily, without any reference to Legislatures. For instance now, in Winnipeg, speaking in a general way, without having investigated the subject, I believe that the medical men as a Society, went to the School Board and got their sanction that inspection should be taken by some of their appointees. That is being done now, and I believe all the schools in the city have had representatives of the medical profession examine the scholars there and quite a number of results have occurred. I do not think it is necessary for us to go to the Legislature to have any work of this sort done in Manitoba. If we go to the School Boards' and bring sufficient pressure to bear upon them, we can have our views adopted. This would have to be done, of course, through some Association. I think a clinic could be established in the City here, and that certain men would volunteer their services for a certain length of time to that Association to do the work. I think, that the Medical Association has, along with the medical men, a certified nurse and it might be that something of that kind might be accomplished in our profession. In any case it seems to me it should be up to the City Association to deal with the work in Winnipeg, not to the Legislature, before the School Board and also in different parts of the Province and Provinces to the West of us.

In concluding, I would suggest that this question is up to the Local Association, rather than to the Legislature or to the Society as a whole. (Applause).

DR. WRIGHT: I would like to ask for some information. It seems to me that an examination of school children's teeth—if they would come voluntarily, then we wouldn't need any legislation on that question. If we are to have a compulsory examination of children's teeth, then we would have to have some authority

for it, either from the City or from the Provincial Government.

THE PRESIDENT: As far as I can understand it, I take it that the School Board here and the medical inspection, which is all we have to go by, is controlled entirely by the School Board. They hire a medical man to inspect the school children. They are given a certificate, and if there is any treatment required, those who are able to pay for it are supposed to go to the physician and have treatment, those that are not, there is a free dispensary, I understand, run by the City, which dispenses for them. It is practically controlled by the School Board. There is no legislation required. Of course if this organization saw fit to take up the matter, a free clinic would have to be arranged for poor people, who are not able to afford dental services. To the others, there would be issued a chart showing the trouble and they would go to any dentist they wished.

I think it is a matter for your local Societies to take up, really because it is ridiculous to think that the Provincial government can go to work and legislate and insist on the inspection of school children's teeth, when there are so many children going to school where a dentist is not available. I should like to hear from Dr. Roach.

DR. F. E. ROACH: Mr. President, and members of the Western Canada Dental Association: This is unquestionably a matter of vital importance to the dental profession of the world. This question of the education of the public upon the care of the teeth is the question paramount before the dental profession to-day, in the world. It is the question that is being discussed, both by the profession and the laity, more possibly, than any other subject pertaining to the general health and the preservation of the health of the public. I am glad, indeed, to see this Society taking steps in this direction, because it is an important question.

Of course, I am not familiar with your laws, nor how you would accomplish this matter, but we have been striving in Chicago for twelve years to get this thing into working order. I think that Chicago was the first city in the United States to undertake this question in the education of the public. We had a committee appointed from the Chicago Dental Society; we spent hundreds of dollars in trying to effect some means of carrying out this question of the education of the public upon the care of teeth and our efforts were a little too early for the conditions.

Now, as I see it, if your legislation is anything like ours, and I presume that your Provinces compare to our States, and your Dominion to our Federal Government, I do not think that you need laws at all, Mr. President; I do not believe that you have any occasion for legislation in this matter. It is simply a matter of securing the co-operation of the local Boards of Education, that is all we need, to bring this matter before the schools that you may have lectures or printed matter brought to the

schools and to the school children. It is through the school children that we expect to accomplish this work, and it is that process that it seems to me is all that is necessary. Now we have never been able to get the co-operation of the School Boards as yet, but we have within the last few months got the co-operation of the Health Commissioner so that there will be dental clinics. Some of our local societies, that is, our district societies in the city have taken up this work and have organized and established in their own communities district clinics, so that the poor children may be taken care of and those clinics are to be established in various parts of the city for that purpose.

But the thing that you are seeking to obtain is the education of the public and that is what we are striving for, and as I see it, Mr. President, it seems to me that all that is necessary upon your part, individually is, that the various local societies, or it does not necessarily need to be an organization, you can appoint or have men in the various towns to meet with your various educational boards and secure their co-operation that you may introduce this matter of the education of the public through the public schools or through your school system. (Applause).

DR. BUSH: Mr. President, when I said that either of those recommendations had its advantages and disadvantages, I meant this: In a scattered country, as we have it here in the West it is hardly to be expected that cities and towns the size of Portage la Prairie, Brandon and Souris, should form a dental organization of their own. The advantage of handing it over to the Provincial organization would be two-fold. In the first place, a committee would likely be appointed by the provincial organization to look into that matter and report to the following general meeting of the Association. Every member of the profession in the whole province is a member of that Association and it is up to him, if he takes any interest in it, to attend that meeting. Then committees could be appointed for the various provinces as well as for the city.

As Dr. Bowles very wisely, I think, suggested in the matter of the City of Winnipeg, it might be quite wise if it were left over to the provincial organization, for them to hand that over to the Winnipeg organization, but if it were handed entirely to a city organization we might leave out entirely the suburban towns, consequently, I feel like supporting Dr. Bowles' motion.

DR. D. M. MITCHELL: Mr. President: I happen to be a member of the School Board of the City of Fort William. (Applause). This question of the examination of school children's teeth has not been under discussion yet, by the Ft. William Board, but we hope in a short time to bring it up before the School Board. At our last meeting of the School Board the medical Health Officer brought in a report to have children examined by the Medical Health Officer, but nothing has been done in that case yet, but the

Medical Health Act says: that the Board of Education shall pay for medical examination and also for dental examination. Now, I should like to ask the question why that is in the Medical Health Act? It says, that they shall pay for dental examination. I think that might give the dentists a clue in some way to get at the Board of Education to have this examination of the children's teeth. If it is in the Medical Health Act, it must be there for some purpose. I believe, as Dr. Roach says, that it is between the dentists and the Board of Education, whether there shall be an examination or not. That is the only way I see out of it. I don't see that we need any legislation. The Board of Education can compel the children to have their teeth examined. The Ontario Public Health Act says on page 57, under Public School Act, Section 14. Duties of Trustees: To provide in their discretion and pay for dental and medical inspection; so I think it is between the Board of Health and the dentists. Supposing there is a compulsory examination, it would be a great deal of trouble to carry it out I think. I see by the Dental Digest, that the City of Cleveland have had an examination there, and the conditions are surprising. The children's teeth are certainly in a very poor state.

It was moved by Dr. Bowles, seconded by Dr. Doyle, that this matter be referred to the several provincial Dental Associations.

DR. McINNIS: Before that motion is put, might I just say one word. I should like to see a resolution by this Society, which covers, as some one has said, a membership of four different provinces, endorsing the principle of compulsory examination of children's teeth; then the matter can be referred back to the provincial Dental Association, but it seems to me that a body of this size would have more weight with the public in the endorsement of this principle. I should like to see that done by this Western Dental Association first.

THE PRESIDENT: I think that could be very nicely incorporated in that motion.

It was moved by Dr. McInnis, seconded by Dr. Weagant, that the Chair appoint a committee to draft a resolution to be submitted to this meeting before the session closed. Carried

THE PRESIDENT: Dr. McInnis, Dr. Mitchell, of Fort William, and Dr. Darling are appointed a committee to draft this resolution.

SOCIAL ASPECT OF DENTAL MEETINGS.

The New Brunswick, Nova Scotia and Prince Edward Island Dental Meetings, which were held July 12th, 13th, in Moncton, N.B., 14th, 15th, in Halifax, N.S., and 18th, in Charlottetown, P.E.I., were particularly noted for the hospitality extended to the visitors.

In Moncton the members and their wives and visitors spent

the greater part of a day at the oil and gas wells. They were taken out in autos furnished by F. W. Sumner, C. W. Robinson, F. J. Sweeney, F. C. Robinson, E. W. Givan, W. S. Smith, Dr. F. J. White, J. B. Sangster, P. S. Archibald, Mayne Archibald, Dr. E. O. Steeves, Dr. F. B. Reade, H. J. Leaman and L. R. Read.

About 75 made the trip and upon arrival at the wells the party were taken charge of by Mr. O. P. Boggs, who was untiring in his efforts to make the visit a pleasant one. The visitors went immediately to the scene of operations and shortly after well No. 10 was shot, which was a novel and interesting sight for the majority present. The shot was very successful and about thirty barrels of oil were thrown out by the concussion. Mr. Boggs was pleased with the well and considers it a fine producer.

After visiting the different wells, the oil tanks and inspecting the plant, the party returned to the boarding house at Oilville, but not before they had a demonstration at the big gas well, No. 8. At the boarding house the proprietress had an excellent spread prepared on the lawn for the party, and this received due attention. The lunch was all the more relished from the fact that it was cooked by natural gas.

After lunch a toast list was honored. Dr. O. B. Price presided and the programme was as follows:

"The King."

"Our guests," proposed by chairman, responded to by Dr. F. A. Godsoe and Dr. Broderick.

"N. B. Dental Society," proposed by Dr. C. A. Murray, responded to by Dr. Barbour, Dr. H. S. Thomson, Dr. Sproule and Dr. Hart.

"Our Sister Province," responded to by Dr. Wright, New Glasgow.

"Our Legislature," proposed by Dr. Price, responded to by Hon. C. W. Robinson and Hon. F. J. Sweeney.

"Our Guests from the Neighboring Republic," responded to by Dr. F. B. Hicks, Brookline, Mass.

"Maritime Oilfields Co.," proposed by Hon. J. F. Sweeney, responded to by O. P. Boggs.

"Ladies," proposed by Dr. Somers, responded to by Dr. Gallagher, Dr. Teakles, Dr. F. C. Bonnell and Dr. Thomson.

"The Moncton Dentists," proposed by Dr. Godsoe, responded to by Dr. F. B. Reade, Dr. Burden and Dr. Taylor.

The party returned to Moncton about 4.30, in time for the visiting dentists to catch the evening trains for home. The visitors expressed themselves as delighted with their entertainment by the Moncton dentists and especially with the day's outing at the oil wells. All were loud in their praise for the courtesy of Mr. Boggs, who did everything possible to make the stay at the wells enjoyable and interesting.

Great credit is due the local dentists for the magnificent

success of the society's meeting. Dr. F. B. Reade, chairman of the entertainment committee, was most untiring in his efforts during the stay of the visitors in the city to make the convention a pleasant one.

At Halifax the address by Dr. Forrest, president of Dalhousie University, was particularly inspiring to the dental profession. Increased accommodation was promised for the Maritime Dental College. He said it was no longer necessary for students to leave the country for a dental education. In the afternoon of July 14th, the members and their wives and visitors went to the north-west Arm in Launches, where the afternoon was spent in boating and bathing. Tea was served on the lawn at Dingle. A band concert and illuminations helped the visitors to enjoy the evening. All returned in the evening by car. Resolutions of thanks to the Nova Scotia society were passed by the visitors.

At Charlottetown, the entertainment of visitors took the form of a drive through the country, which is perhaps the finest farming land in Canada. It is worth a trip to Prince Edward to drive through the beautiful farms.

Visitors and members at all the meetings feel well repaid for attending the meeting, both from a social and scientific point of view.

DENTISTS AT PLAY.

The second annual picnic of the Hamilton Dental Society was held at Bay View, and was a huge success, about fifty members taking advantage of the opportunity to enjoy themselves. The happy party journeyed from the city on the Ivan R., and as soon as a landing was effected commenced to make merry. Baseball was indulged in, and in a one-sided game the bachelors succeeded in putting it over the benedicts by the score of 49 to 3. Races of all kinds were on the card, and the finishes were very exciting, many of the runners being a little stale. The feature of the day was the effort of Dr. Thompson to throw all comers. He met his match, for Dr. H. Robertson, of much smaller size, threw the strong man so hard that he had to be dug out of the earth. Another feature was a dreaming match, which was closely contested, but finally won by J. Leitch. Hitting the bottle, not necessarily the tipsy one, was won by A. McDonald. Songs were sung by several of the members during the lull in the proceedings, and a little poem, dedicated to Dr. Percy Moore, was eloquently recited by one of the members. The poem, which is full of sympathy, follows:

The parson murmured 2 and 2 make 1,

And slipped a 16-k. on Dearie's grab,

And when the game was tied and all was done,

The guests shied footwear at the bridal cab,
And "Percy's" brother, tall and rather slim,
"Snickered": "She's left her happy home for him."

After all had been exhausted by the hilarity of the racing and musical program, a dainty repast was partaken of, and Dr. Thompson led to the wire in this event. Letters of regret were received from the following members of the Couldn't Come Back Club: Jas. J. Jeffries, Jack Sweet, Hamilton Tigers, Halley's Comet and Napoleon. A male chorus, by the members of the company, led by Drs. Lester, Clark, Everett and several others, was very touching, and even the waters of the bay roared their applause.

A marvelous stunt was then performed by William Tell Overholt, who shot the ashes from Kappele's snipe at the remarkable distance of forty yards.

The result of the events follow:

Baseball—Benedicts 3, Bachelors 49.

100 Yards Race—Dr. Kelly.

Smoking Race—Dr. Bell.

Fat Men's Race—Dr. Robertson.

Hitting the Bottle—A. McDonald.

Three-Legged Race—Drs. Huggan and Fulton.

"Rassling" Contest—Hercules Sandow McDonald, the invincible boy wonder, against Yousouf Tipperary Thompson, the terrible Irishman and other things, stopped by the police.

The committee to whom the credit for the success of the affair is due was composed of Drs. R. McDonald, A. McDonald, Geo. Everett, Jake Johnson, W. Thompson and J. W. Bell.

ELGIN DENTAL SOCIETY.

REPORTED BY H. H. WAY, D.D.S., ST. THOMAS, ONT.

The Elgin Dental Society has completed final arrangements for John Worthington Dowd, L.L.D., orator, prominent educator and late public school superintendent, Toledo, Ohio, to address a mass meeting of school children, teachers and mothers, on the afternoon of September 9th, in the Granite Rink, on the "Importance of the Teeth and Their Care." To be illustrated by charts and models. In the evening, the same subject will be discussed, but in the Public Library Auditorium, and will be fully illustrated by Stereopticon Views. The Society is fortunate in securing Dr. Dowd, as his territory is limited to Ohio, Indiana and Michigan. Both the Inspector and Board have given us every support. As this will probably be the only opportunity for the dentists of Ontario, the Society here extends a hearty invitation for all to be present, as from reports from both Cleveland and St. Louis, he has won a place on this timely subject.

OFFICERS OF THE P. E. I. DENTAL SOCIETY, 1910.

The Annual Meeting of the Prince Edward Island Dental Society was held, July 18th, 1910, and the following officers were elected:—

President—J. A. McMurdo, Summerside, P.E.I.

Vice-President—T. E. E. Robbins, Charlottetown, P.E.I.

Secretary-Treasurer and Registrar—J. S. Bagnall, Charlottetown, P.E.I.

Council—J. H. Ayers, Charlottetown; A. B. Reid, Charlottetown, and above officers.

OFFICERS OF THE ALBERTA DENTAL ASSOCIATION.

President—A. D. Callum, Calgary.

Vice-President—A. C. Jamieson, Edmonton.

Secretary-Treasurer—H. F. Whittaker, Edmonton.

Directors of the Board—Dr. J. S. Stewart, Lethbridge; Dr. H. G. Heare, Westaskwin.

OFFICERS OF THE NOVA SCOTIA DENTAL ASSOCIATION.

President—Dr. F. W. Wright, New Glasgow.

1st Vice-President—Dr. H. W. Burchell, North Sydney.

2nd Vice-President—Dr. T. F. Macdonald, Truro.

Secretary—Dr. R. E. Macdonald, Halifax.

Dr. W. C. Oxner, of Halifax, was made a member of the executive committee.

Dr. Elias N. Payzant, of Wolfville, one of the veterans of Dentistry in Nova Scotia, was unanimously elected an honorary member of the Association.

OFFICERS OF THE NOVA SCOTIA DENTAL BOARD FOR
1910-11.

President—H. Woodbury, Halifax, N.S.

Secretary, Registrar—Geo. K. Thomson, Halifax, N.S.

Treasurer—A. W. Cogswell, Halifax, N.S.

Matriculation Examiner—Prof. Howard Murray, Halifax, N.S.

Final Examiners,—Members of the Board.

Committee on Education—Halifax Members of the Board.

OFFICERS OF THE NEW BRUNSWICK DENTAL ASSOCIATION.

President—E. R. K. Hart, Sackville, N.B.

Vice-President—F. C. Bennell, St. John, N.B.

Secretary-Treasurer—F. A. Gedsee, St. John, N.B.

OBITUARY OF DR. E. B. IBBOTSON.

Lt.-Col. E. B. Ibbotson died on June 16th, after an illness extending over several months. He was afflicted with arterial sclerosis early in the year, but recovered somewhat towards spring. Since Easter, however, he had been confined to his house, and gradually grew weaker, death finally resulting from the snapping of an overstrained artery.

In the death of Lt.-Col. Ibbotson many people in business, social and military circles in Montreal will lose a valued friend. He had spent his whole life in the city, and had been active in many spheres, although military work was his great interest, and in this he achieved distinction, being for many years recognized as a most efficient officer. Lt.-Col. Ibbotson came by his military instincts naturally. His grandfather, Capt. Ibbotson, marched with the 103rd regiment from Halifax to Quebec in 1812, while his father was also prominent in militia work.

The late Edward Benjamin Ibbotson was born in Montreal in 1855 and educated at the McGill Normal School and Bishop's College, Lennoxville, where he studied dentistry, graduating with the degree of D.D.S. in 1880. Ever since then he practised his profession in Montreal, meeting with considerable success. In 1893 he was appointed a member of the Dental Board of Examiners, and for two years was treasurer of that body, while in 1895 he was appointed president, holding office until he resigned in 1898. For some years he was dental surgeon at the Montreal General Hospital, and also at the Royal Victoria Hospital. He was also president of the Odontological Society during 1900 and 1901.

In military affairs the deceased was always active, his term of service dating from before he entered upon his professional career, and he worked his way from the ranks to the command of a brigade before he joined the Reserve Officers a few years ago. He enlisted with the 6th Fusiliers as a bugler, later joining the Victoria Rifles, and again the 5th Royal Scots. His promotion was rapid, and in 1902 he was appointed Lt.-Col. in command of the Royal Scots, and continued in command for some years. On his retirement from the regiment he was appointed to the command of the 18th Infantry Brigade, which he held until 1909, when he retired from active militia work, with the rank of Lieut.-Colonel.

Lt.-Col. Ibbotson was also keenly interested in rifle shooting, and was president of the Amalgamated Rifle Association from 1893 to 1896, while from 1894 to 1896 he was vice-president of the Montreal Rifle Association. In 1894 he commanded the Canadian Bisley Team, and in the following year he was elected president of the Montreal Military Institute. For many years he was also vice-president and member of the council of the Dominion Rifle Association.



THE LATE E. B. ABBOTSON, D.D.S., MONTREAL, QUE.

In the course of his military duties Lt.-Col. Ibbotson was in command of a division of troops during the cotton strike riots at Valleyfield, and he was also in command of the "Scarlet" Brigade at Quebec on the occasion of the visit of the Duke of Cornwall and York in 1902.

The deceased was married in 1887 to Fanny Louisa, daughter of the late M. H. Gault, M.P., who survives him, with eight children.

Lt.-Col. Ibbotson was a member of the St. James, Canada, Chapleau and Mattawa Fishing and Hunting Clubs. He was also for many years an active member of the congregation of the Church of St. James the Apostle.

In addition to his immediate family the deceased is survived by four brothers and five sisters, Mr. George Ibbotson, of Edmonton; Dr. J. S. and Dr. Frank Ibbotson, and Mr. Harry Ibbotson, of Montreal; Mrs. E. Leonard, of London, Ont.; Mrs. Knapp, New York; Mrs. Aikman, of Parsboro', N.S.; and Miss Emma Ibbotson, Montreal. Another sister was married only last Monday to Dr. F. A. Kendall, of Buffalo.

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VOL. XXII

TORONTO, AUGUST 15, 1910

No. 8

PURE MILK AND SEPTIC MOUTHS.

In a very excellent article in the July number of the Canadian Therapist and Sanitary Engineer, by J. C. O. Hastings, Toronto, on "The Food Value of Milk," appears this paragraph.

"It has taken years to educate the medical profession and the public to the fact that all disease is due to the presence of germs that have gained access to our lungs or taken into our stomachs in food or drink. However, since this fact has been established every precaution has been taken by both physician and surgeon by means of rigid cleanliness and antiseptics in all surgical procedures and by careful isolation of patients and disinfecting of all excreta, etc., in medical cases."

The dentists would like to know how many years it is going to take to educate the Medical Profession to appreciate the fact that the disease germs of which Dr. Hastings speaks, pass through the mouth and nose before they reach the lungs or stomach and that these cavities are cultivating beds of the germs he fears. While it is true that no food should be supplied to the public which might be a source of danger to health, it is equally true that all sources

of danger by contamination after it reaches the public and before it reaches the stomach should be guarded against. Is it not a waste of energy and thought to secure pure milk and then mix it up with millions of germs from the mouth just before it enters the stomach? Many physicians can talk knowingly and wisely about the micro organisms of the mouth, but how many of them even vaguely appreciate the significance of the many square inches of tooth surfaces and many folds of mucuous membranè covered with milk and food stuffs at body temperature and abundance of moisture for hours without disturbance. How many appreciate the fact that with the first morsel of food at each meal all the germs easily dislodged are carried to the stomach. How many know and teach that all those living upon a liquid diet and especially sick people should clean their mouths before as well as after taking food. Dr. Hastings says, that a teaspoonful of milk which contains 3,000 germs will contain 10,000,000 in 24 hours if kept at room temperature. This granted, what will happen in the mouth of the very sick, semi-conscious or comatose patient who is fed pure milk (over which so much effort was spent) every three hours and the mouth not cleaned. Is it not clear that a very important part of the treatment of this patient would be neglected. It may be said that the nurse is expected to cleanse the patient's mouth. Who teaches the nurse how to do it? Who teaches the physician? Such knowledge does not come by instinct. The fact is the average physician knows no more how to care for the mouth than the average patient, and few appreciate the relation of the condition of the mouth to all of the acute infectious diseases and to many chronic diseases.

In a recent address before the Royal Society of Medicine, R. Acherley reported that of a 1,000 cases of chronic diseases among the better classes, 420 had defective and septic mouths. 798 did not or could not masticate their food. He says that the conditions upon which these figures were based were obvious and that a careful examination, such as a dentist would make, would doubtless have revealed many others.

Pure food was not all that these 798 out of 1,000 chronic cases required, nor would "a pure milk diet and medicine" be all that the 420 required. I do not wish to decry the effort to get pure food, but I wish to point out a source of contamination of food and its consequences which is not fully appreciated by the Medical Profession.

INTERNATIONAL MILLER MEMORIAL FUND.

At the recent meeting of the Canadian Dental Association, a committee was appointed to take up this subject in Canada and take part in the meritorious movement. The plan is, to have a

general central committee of which R. J. Reade is Chairman; Wallace Seecombe is Treasurer and C. G. Scott, No. 1 Charles St. East, Toronto, is Secretary.

Each province has a chairman of its own, who will appoint sub-committees to assist him in the various cities and districts in his province. The chairmen appointed are: G. K. Thomson, Halifax, N.S.; J. W. Moore, St. Stephen, N.B.; J. S. Bagnall, Charlottetown, P.E.I.; F. A. Stevenson, 186 Peel St., Montreal; Eudore Dubeau, 396 St. Denis St., Montreal; W. J. Bruce, Kincairdine, Ont.; M. H. Garvin, Winnipeg, Man.; F. C. Harwood, Moose-Jaw, Sask.; H. F. Whittaker, Edmonton, Alta.; R. Ford, Verrinder, Victoria, B.C.

The committee expect to have the whole collection made by the first of the year.

The following preliminary subscriptions have been received: Dr. C. G. Scott, \$25; Dr. Geo. Gow, \$25; Dr. A. F. Webster, \$25; Dr. Wallace Seecombe, \$25; A. E. Webster, \$25; A. J. McDonagh, \$25; R. J. Reade, \$25. The Profession will receive subscription blanks in a few days.

This fund should commend itself to the Canadian Profession, because its results will be for all time. Annual prizes will be given for the most advanced work done for the Profession each year. Canada will be taking her rightful place in international affairs. Every Canadian Citizen must do his part to make his country a nation.

WHAT ARE YOU DOING?

The Educational Committee of the Nova Scotia Dental Association presented a report from which we glean some points, which may be useful to others.

An important matter of business was the presentation by the committee on dental education of the public school children (Drs. George K. Thomson, Ritchie and Woodbury) of their report.

Interviews have, said the report, been held with the educational authorities, with regard to lectures, examination of school children's teeth, revision of school books, and publication and distribution of pamphlets.

The supervisor has requested a resumption of examination of the children's teeth, to be followed by short lectures on the care of the teeth. The members of the Halifax Dental Society are dental examiners in the city schools, and are now at work on five minute sample lectures for this purpose.

It was reported that on the occasion of Dr. Bryce's lecture before the Anti-Tuberculosis League, Dr. Frank Woodbury and Dr. Thomsen were present as representatives of the Dental Association. Dr. Woodbury, in the course of the ensuing discussion, calling

attention to the importance of oral prophylaxis and the work of the association.

With the exception of Halifax and Sydney, said the report, no educational work is being done, the committee recommending the appointment of one member in North Sydney, Yarmouth, Windsor, Truro, Amherst, New Glasgow and Glace Bay, to organize local committees with a view to carrying on a campaign. Subsequently these appointments were made.

Editorial Notes

The next meeting of the New Brunswick Dental Society will be held in St. John, N.B.

The St. Thomas Dentists, will close their offices on Wednesday afternoon, during the summer months.

The Hamilton Dental Society held their Second Annual Picnic at Bay View Park, on Wednesday, July 13th.

Dr. G. J. Musgrove, of Niagara Falls, has returned from an extended visit to the Pacific Coast, and will resume his practice on Huron St.

A committee was appointed by the New Brunswick Dental Association to consult those in charge of the training schools for nurses to have lectures given on dentistry to nurses in training.

Those interested in the dental education of the public in Canada should read the discussion on this subject which took place at the Dental Society of Western Canada. It appears in this issue.

The late Dr. E. B. Ibbotson was in practice in Montreal, with his brother, Dr. John S., for nearly 30 years, under the firm name of Drs. E. B. and J. S. Ibbotson, and the practice will still be carried on under the firm name, by Dr. John S. Ibbotson.

Dr. Dowd will deliver a lecture to the School Children and Teachers of St. Thomas, September 19th, 1910, on the care of the teeth. In the evening he will address the citizens on the same subject. The Elgin Dental Society is taking the lead in these matters. Dr. Dowd is a noted educationist of Ohio, ex-Superintendent of Education.

FOR SALE—Dental Practice in western Ontario town of 5000. Best location in town, and office very completely furnished. Apply, **ETHICAL**, Dominion Dental Journal.

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Dominion Dental Journal

VOL. XXII

TORONTO, SEPTEMBER 15, 1910

No. 9

Original Communications

CAVITY FORMS FOR GOLD INLAYS.*

BY W. C. GOWAN, D.D.S., PETERBORO, ONT.

The results of experiment in casting inlays for cavities in extracted teeth have persuaded the writer that the more nearly a compound cavity approaches that interior form, suited to foil filling the greater and the more damaging will be the errors in fit of any gold inlay than can be cast for it. The errors in fit seen at the gingival wall and angles, in Figs. 1, 2, and 3, are undoubtedly due to contraction of the metal on solidification and cooling in the mold. Half the gingival flange is removed from the inlay in situ in Fig. 1, to show the failure of that end of the inlay, to reach the gingival wall. Though the gingival margin of this cavity is distinctly bevelled, the flange of the inlay was with difficulty burnished to contact with the cavity margin in the best cast of some ten or more made for it. Without bevel or flange, as in Figs. 2 and 3, solution of cement and consequent failure of the operation would be only a matter of time.

Strictly speaking, we cannot prevent contraction of metal in casting. But we can, as pointed out by Dr. Price, so modify, offset or control contraction as to make it practically harmless in inlay casting, provided always, that inlays be of a form suited to the control of shrinkage or the transfer of its effects to parts where they do no harm.

Contraction can be modified by pressure upon the molten metal sustained to keep the mold full, until the metal has so far solidified, that no more can be forced into the mold from the gate. Contraction can be offset or compensated by expansion of the mold, previous to casting or mechanically controlled, as by an unyielding core that compels stretching of the metal in certain directions, during solidification and cooling.

* The cavities and inlays from which these photo-illustrations are made were prepared by Dr. Gowan for the Canadian and Ontario Dental Societies and submitted at the joint convention of those bodies in Toronto June, 1910. Thanks are due Mr. R. Farthing, of Peterboro, for his excellent work photographing the specimens. (Copyrighted.)

Mechanical control can be fully exercised only in casts of such a figure as a band or a ring; but it can be exercised to an important and useful extent upon the occlusal portion of such inlays as Figs. 5, 6, 7, 8, 9, 10; to a very small extent in such as Figs. 1 and 2. In Fig. 3, mechanical control of shrinkage in the occlusal portion of the cast is diminished, owing to the bulk and consequent strength of the part when a hard metal is used. The areas of the core receiving the impact of contracting metal are small, and either give way or lose their hold of the metal in the later stages of contraction. The same is true of forms seen in Figs. 1, and 2, where mechanical control is even less.



1 2 3 4 10 11



1 2 3 4 10 11

The abrupt gingival ends of inlays 2 and 3 permit the vacancies, due to contraction to occur where they can do the greatest harm. Efforts to mallet and burnish inlays, 1, 2, and 3 to place at the gingival were unsuccessful, though more force was used upon 1 and 3 (which are strong teeth) than could be tolerated in the mouth.

Our present practical casting facilities do not wholly affect or control shrinkage in any inlay. But if they did, such inlays as 1, 2, 3 would not go to place with cement in the cavity.

Uncontrolled or unmodified shrinkage of gold in casting is according to the findings of W. A. Price, 2¼ per cent. By pressure and previous expansion of the mold we can practically reduce

this shrinkage to about 1 per cent., and probably to somewhat less in those directions in which mechanical restraint can be effectively applied—as between the mesial and the distal portions of the inlay in Fig. 5.

The foregoing considerations induced the writer to design the cavity forms illustrated (excepting 1, 2, 3, and 13), as a practical



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means of avoiding the ill effect of contraction of metal in casting and the difficulties that beset good practical cast inlay work in those forms of cavities now commonly in use. The advantages sought (and secured in practice by the writer), in these new designs are:

(1). An inlay of which all the margins can be easily and certainly burnished to smooth and proper contact with prepared

cavity margins, and an attenuated bevel of those margins, so that contraction of the casting cannot remove the means of closing the joint to prevent solution of cement by the fluids of the mouth.

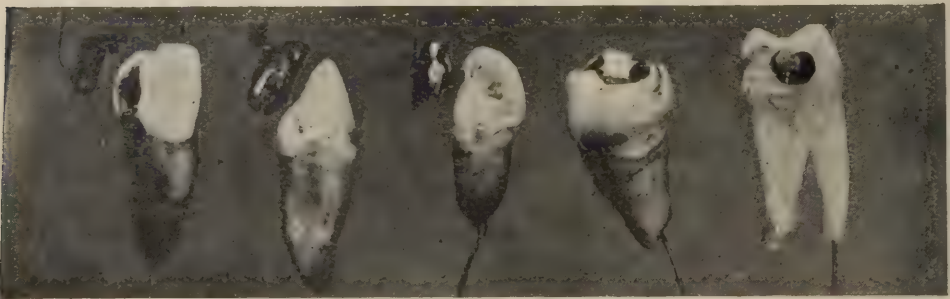
(2). A form of inlay that is set to place without danger of fracturing the tooth, even when the latter is much weakened by decay.

(3). A form of cavity in which extension for prevention is secured at minimum expense, in tooth tissue, time, labor and pain.

(4). A form of cavity that need never closely approach the pulp.

(5). A form that yields the required impression easily.

(6). A form of cavity and inlay that causes minimum splitting strain upon the tooth, and when cemented and burnished



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affords maximum protection to weak walls, against both caries and occlusal stress.

(7). A form suited to ample retention and resistance of stress.

(8). A form of cavity permitting the use of a thicker and consequently stronger and less soluble mix of cement than can be used to set inlays in deep rectangular cavities, such as gold foil or porcelain inlays required.

The examples submitted to the Canadian Dental Association meeting, June, 1910, afford circumstantial evidence in support of several of the foregoing claims. Of eighteen extracted teeth, most of which were dry for years, and some much weakened by

decay, only one was broken by the seating or burnishing of the inlay.

These inlays are made of coin silver and were cast in Price's Artificial Stone, at various pressures. The molds previous to casting, were heated in all cases—in some to a degree as high as the investment was thought to bear, without decomposition.

When decomposition of the investment did not occur—a remedy for this difficulty has lately been found by the writer—the castings made at the highest pressures and temperatures of molds were best, both in fit and texture. The sprues of these were tough and strong like wire, and the most attenuated feather edges of the wax-work were fully reproduced at all points.

In Fig. 4, the cavity is concave transversely and terminates gingivally in a bevel. (The inlay in situ was by oversight left slightly out of place when photographed). This form, though far superior to 1 or 2, is not so good, nor so easily prepared as the subsequent bicuspid forms shown.

In 6 and 8, the old amalgam was not removed and in the others, where necessary, the decayed cavities were filled with cement; afterwards the proximal surface was ground quite flat. The facet thus cut, should terminate definitely to the gingival, and extend buccally and lingually as far as prophylaxis requires, or until sound enamel is reached. The extension beyond the gingival line, seen in Fig. 5, is by no means to be imitated, unless the pericementum be already detached by disease at this point.

A key-way as seen in Figs. 7, 8, 9, 10, and other cavities, is easily prepared with inlay burr of suitable size. Keys are recommended to stiffen the inlay in cases where the metal would otherwise be too thin, to give cement a better grip, to remedy any tendency of an inlay to slide or rock during burnishing, and where decay and loss of tissue has been great, to furnish direct gingival support as in Fig. 10. In certain cases as Fig. 6, the occlusal form is such as to render a key upon the proximal superfluous, unless the inlay be a bridge attachment. In the latter case a key should be provided.

Before setting inlays, all cement, amalgam or decayed tissue should be removed to have a single body of clean new cement between metal and cavity surface.

Cement for setting gold inlays should not be mixed thin. Too large a proportion of liquid to powder makes a cement that dissolves rapidly, where at all in contact with oral fluids. The wider the area exposed the more rapidly the cement is dissolved. A contrary opinion has unfortunately been allowed to pass unchallenged, of late, to the effect that a thin layer of cement in a close fitting joint dissolves more rapidly than a thicker layer in a more open joint.

If the mix of cement and the surrounding conditions were the same in each case a result in accordance with the latter opinion

would indeed be surprising. And until such a result be reported by competent observers we should regard this opinion as erroneous. This error has probably arisen from failure to consider the difference between a *thin layer* of cement and a layer of *thin cement*.

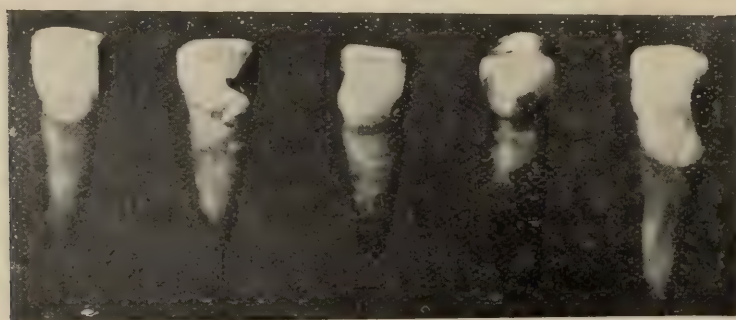
The most important advantage of the gold inlay over any other is, in fact, due to the malleability of gold by virtue of which the joints can be closed to practically exclude saliva from contact with the cement in which it is set.

For compound inlays, exposed to stress, as upon incisal angles, 24-k. gold is too soft. For such inlays the metal should be as tough and hard as coin silver, at least.

In setting any gold inlay, all margins should be burnished before the cement has set, otherwise satisfactory closure of joints



12 16 17 18 19 20



16 17 18 19 20

will be impossible. The attempt to close a joint filled with set cement results in crushing the cement to powder between gold and cavity margin. A joint so treated will leak and show stain in a few months.

Both cavity form and other means of holding the inlay while burnishing should provide absolutely against its movement, after once it has reached its place in cement.

In extensive occlusal decay, fill cavity with cement and grind the margins where walls are thin to receive a protecting flange. (See Fig. 12). In restoring whole occlusal surface including parts

of other surfaces, provide no square or abrupt termination of the peripheral wall of the inlay. Prepare the enamel to be overlapped by a knife edge all round the tooth. (See Fig. 11).

For incisal angles, if a thick, heavy inlay, as Fig. 13, be used all the margins, even of the incisal step should be bevelled and the flanges on the inlay to fit them carefully preserved. This form of cavity has the disadvantages noted in Figs. 1, 2, 3.

The shell-like forms of inlays 14, 15, 16, 17, and 20, are designed to avoid the faults inevitable in 1, 2, 3, and 13. In 14, an incisal dowel and proximal key, and in 15 a pulp chamber dowel, provide for retention and resistance to stress. 15, 17 and 20 are pulpless and extensively decayed. Fig. 16 is a thick incisor somewhat abraided. Its distal angle is supposed to be lost by decay. Fig. 18 shows restoration of loss by abrasion and proximal decay.

Fig. 19, abrasion without caries, due to vigorous use of teeth in mastication. Where proximal overlap is sufficient or vigorous bite modified, some or all of the dowels may be omitted.

Fig. 20, Long, thin crowned incisor, pulpless, extensive decay, deep lingual fossa. Shell inlay with long canal dowel gives maximum strength with minimum display of metal.

Fig. 21, shows why extension for prevention should be practised. A small round filling in the proximal surface of a tooth does not prevent recurrent decay. The matter of this figure is introduced with acknowledgements to Dr. Black.

It is the present conviction of the writer that no regular proximo-occlusal filling of a form, warranted by present knowledge, can be made with foil in the mouth without greater waste of tooth tissue than is necessary in the use of inlays of the forms here illustrated.

TREATMENT OF THE DENTAL PULP.

BY A. E. WEBSTER, L.D.S., D.D.S., M.D., TORONTO.

The normal human tooth contains a vital pulp. The function of the pulp according to a few histologists has ceased, when the tooth is fully developed. Upon this hypothesis many practitioners do not hesitate to devitalize the pulp of a tooth for reasons others would consider unjustifiable. The experience of the great majority of practitioners is that a pulp should not be devitalized, unless there is no hope of retaining it permanently in a normal vital condition. It may be justifiable to sometimes attempt to retain the vitality of a pulp even for a few years if the tooth is not fully developed.

Notwithstanding the argument set forth by histologists and some radical practitioners, observation shows that both the enamel

and the dentine of a tooth which has lost its pulp have not the strength and endurance of a tooth which has a vital pulp. The earlier in life a tooth loses its pulp, the fewer years will it last. A tooth which loses its pulp before the normal closure of the apex or shortly after its eruption does not usually give many years of useful service. Both the tooth structure and the pericemental membrane lose in strength and in endurance. Teeth which have lost their pulps are not so useful for mastication as those with vital pulps. Dr. Black has shown that molars upon which a patient could bring to bear in closure a pressure of over two hundred pounds were reduced to a pressure of less than a hundred pounds by devitalization of the pulp. The pericemental membrane will not tolerate the same pressure after the pulp has been removed from the tooth as it did before. Thus, crowns supported by roots of teeth which have lost their pulps, and bridges supported by abutments without pulps are not as useful as if the pulps of the supporting roots and abutments had remained alive. While all teeth do not equally discolor when their pulps are devitalized, yet, a sufficiently large number discolor badly enough to make the careful operator consider the possibilities of a darkened tooth. The degree of discoloration depends largely upon the mode of operating, but perhaps almost as much upon the structure of the tooth. The younger the patient, the greater the possibilities for discoloration. No conscientious operator lightly undertakes the devitalization of the pulp of an anterior tooth for a young patient.

It is well recognized to-day that those cases of devitalization which give the best results are among single rooted teeth of mature persons; those from which the pulps can be most certainly removed. No preservative yet discovered will keep dead tissue in a pulp canal from infection. As the difficulties of removing all the pulp tissue from root canals increases, so do the chances for ultimate failure.

Few operators would hesitate to devitalize the pulp of a cuspid because they might not remove all the pulp, and thus cause the loss of the tooth. On the other hand there are few operators who know anything about Dental Anatomy, who would not hesitate to devitalize a third molar, or sometimes an upper first bicuspid because of the difficulties of removing all the pulp and the subsequent possibilities of losing the tooth.

The foregoing reasons and those of the pain, discomfort, loss of time and the expense are enough to dissuade the dentist from needlessly devitalizing a dental pulp.

Strong as the reasons are for retaining a pulp alive where it is indicated, yet they are not as strong as those for devitalization, where such an operation is demanded. The pain, discomfort, the possibility of an alveolar abscess and its consequences are sufficient to cause the dentist to use all the knowledge and

experience obtainable before deciding what is the wisest thing to do. In no case is the dentist's misjudgment fraught with such bad consequences as in not devitalizing a pulp which should be devitalized.

MANAGEMENT OF PULPS ALMOST EXPOSED OR EXPOSED, WHEN THE OPERATOR BELIEVES CONSERVATION IS DESIRABLE.

DENTAL CARIES. It can be laid down as safe practice to protect or cap a pulp which has not caused pain that has lasted some hours and is not exposed when all the carious dentine is removed. It is always necessary to make a careful examination of the dentine covering the pulp in deep cavities to be sure that an exposure does not exist. This should be done with a magnifying lens, where it is possible. A fine pointed explorer or broach may be carefully passed over the area where the pulp would seem to be nearest. Care should be taken not to allow the fine point to penetrate, else there would be unnecessary pain. Pressure should not be directed towards the pulp, the point should be drawn crownwards, rather than rootwards. The most likely point of exposure is at one of the horns of the pulp. In teeth which are angular in form with long cusps, the horns of the pulp run almost to the enamel.

RECEDED PULPS. There are many factors which may influence the location of the pulp. Any irritation which is not sufficient to destroy living tissue is a stimulant. All the slight irritations which occur to the pulps of teeth, tend to make them throw out secondary dentine to protect themselves. The chief irritant or stimulant to the dental pulp is change of temperature. The pulps of old people are sometimes receded to the level of the neck of the tooth, while in all cases recession goes on as years advance. Teeth which are worn away will have their pulps receded; in fact the horns of the pulp are usually obliterated in such teeth. The pulps of teeth of "mouth breathers" are usually more receded than others. Large metal fillings cause pulps to recede. Cavities which have not developed rapidly enough to cause an exposure or too much irritation, cause recession. Erosions and pyorrhea alveolaris cause a similar result. Salt, acids, and sugars are irritants when applied to the dentine of a tooth and cause recession. Having in mind these influences on the size and location of the pulp and an exact knowledge of the thickness of the tissues of the normal tooth there should rarely be any doubt as to the location of the horn of a pulp.

TEMPORARY TREATMENT OF EXPOSURES FROM DECAY.

If in the case of the young, the weak or very old the removal of all the carious dentine would expose a pulp which had not previously pained and for good reasons a temporary operation is desirable, all of the decayed tissue—which means the soft or

discolored tissue—may not be removed. It is desirable that large spoon-shaped excavators shall be used to remove decay from cavities in which there is any likelihood of exposing the pulps. Decalcified dentine is best removed by peeling it off in layers. The instrument may be cut into it close to the enamel, thus avoiding pressure upon the pulp and a pulling force applied to the instrument rather than a cutting one. With a little care and observation the decalcified dentine may be removed from deep cavities without pain. With all the decalcified dentine removed that is possible without an exposure, there are two courses of practice open to the operator. In any case it is necessary to sterilize the remaining tissue. This cannot be done immediately. He may apply a disinfectant and seal the cavity for a few days, or he may apply a disinfectant with some solid substance and insert the filling at once. The most satisfactory practice is to disinfect the cavity, and at a subsequent sitting put in the filling. But since most of the operations under consideration are looked upon as temporary, the method of mixing the disinfectant with a non-irritating solid is the most satisfactory. It must be borne in mind that the main hope in these cases is for the pulp to die painlessly and not afterwards become infected with pyogenic organisms, or that it may remain in a quiescent condition until a more convenient season. It is believed by Black and others that if the remains remaining in the sterilized tissue are not sufficiently irritating to destroy the pulp, the disinfectant is. The disinfectant used in such cases must be as non-irritating and as permanent as possible.

SHALLOW CAVITIES. Shallow or saucer-shaped cavities, or those in small teeth are best managed by disinfecting and filling at a subsequent sitting, because there is not room for a layer of a disinfecting material and the filling. A layer of oxy-phosphate of zinc or oxy-sulphate of zinc should be used as a protection in any case. Some operators cover that part of the cavity next to the pulp with a varnish, such as benzo balsam, sandarac, copal or chlora percha and then apply the filling. This method is only advisable after disinfecting for several hours. If the cavity is deep and the immediate operation is decided upon, there is no method which gives better results than mixing oil of cloves with oxide of zinc or with oxy-sulphate of zinc and apply this to the pupal wall with a round ended instrument, covering with oxy-phosphate of zinc.

TEETH NOT FULLY DEVELOPED.

Frequently deep cavities occur before the apex of the tooth is normally closed. In such cases it is very desirable to keep the pulp alive until calcification is completed. If the pulp is removed from an incompletely developed tooth the canal is larger at the apex than it is at any point nearer the crown, and as a consequence

cannot be perfectly filled with a solid substance. Besides this, it is difficult to devitalize and remove the pulp and dry the canal at the end. The chances for permanency are very remote. Every possible effort should be made to keep the pulps of the young alive. A careful study of the following table will be helpful in deciding the proper procedure.

TEMPORARY TEETH.

Twenty in Number.

Calcification Begins, Centrals 4th F.M. Complete 17th to 18th M. Eruption, 6th to 7th M. Begins, Lateral 4th F.M. Complete, 14th to 16th M. Eruption, 7th to 9th M. Begins, Cuspid 5th F.M. Complete, 24th M. Eruption, 17th to 18th M. Begins, 1st Molar 5th F.M. Complete, 18th to 20th M. Eruption, 14th to 15th M. Begins, 2nd Molar 5th to 6th F.M. Complete, 20th to 22nd M. Eruption, 18th to 24th M.

PERMANENT TEETH.

Thirty-two in Number.

Calcification

	Begin	Complete	Eruption
Central	1st Yr.	10th to 11th Yr.	7th to 8th Yr.
Lateral	1st Yr.	10th to 11th Yr.	7th to 8th Yr.
Cuspid	3rd Yr.	12th to 13th Yr.	12th to 13th Yr.
1st Bicuspids	4th Yr.	11th to 12th Yr.	10th to 11th Yr.
2nd Bicuspids	5th Yr.	11th to 12th Yr.	11th to 12th Yr.
1st Molar	8th F.M.	9th to 10th Yr.	6th to 7th Yr.
2nd Molar	5th Yr.	16th to 18th Yr.	12th to 14th Yr.
3rd Molar	9th Yr.	18th to 20th Yr.	17th to 20th Yr.

First molars are often so decayed in children less than ten years of age, that if all the decay were removed the pulp would be exposed. In the great majority of such cases it is good practice to remove all the decay possible, and then cover the pulpal wall with a paste of oil of cloves and oxide of zinc and fill the remainder of the cavity with oxy-phosphate of zinc, and after the time for the full calcification of the root is passed, open the cavity and remove all the filling and any remaining decay, and if the pulp is clearly exposed devitalize it and insert a permanent filling. If there is no exposure, oxy-sulphate of zinc should be placed next to the pulp and over this the permanent filling. The same practice may be followed in the anterior teeth of the young. Many deep cavities in the young are so sensitive that it is impossible to properly excavate them, though the pulp is not exposed. These cases may be capped with oxide of zinc and oil of cloves and covered with oxy-phosphate of zinc for a few months or a year, and then removed and a permanent filling inserted. During the time the test filling is in place the pulp will have been stimulated to throw out secondary dentine to protect itself. The

decay can be removed with much less pain at this time. If hypersensitive cavities are filled with oxy-sulphate of zinc, mixed with thymol crystals and allowed to remain in place for a few weeks or months the decayed tissue can then be removed with less pain. Such a temporary filling may be covered with oxy-phosphate, if the cavity is large enough, and there is any danger of dislodgement.

DISCOLORED DENTINE COVERING THE PULP.

If a permanent operation is intended, it is not good practice to leave any soft decay in a cavity, even if its removal would expose the pulp. Some authorities go so far as to say that no discolored dentine should be left in a cavity. The tendency of the present is to be more painstaking in removing decay than in the past. Some of the older writers on this subject advanced peculiar theories to support their views. Some went so far as to say that decalcified dentine would be recalcified under a capping of zinc chloride. No such views are held to-day, but many continue to cap exposed pulps with zinc chloride, believing that the irritation of the drug stimulates the pulp to throw out calculum salts to cover the exposure. The success of the practice, if it ever had any more, likely depended upon the disinfecting properties of the zinc chloride, which retained such capped pulps in an aseptic condition for a long time, even though they were dead.

The practice of removing all discolored dentine covering a pulp is equally unwise, and besides being distressing to the patient. Every observer of the progress of decay in teeth has noticed streaks of discoloration reaching from a superficial attack of caries, which it would be very unwise to cut out. It must be borne in mind, however, that such discolored tissue has been influenced by the carious process. That part near the surface much more than that deeply located. There is a wide range between decalcified tissue which when removed is compressible, and the hard discolored tissue of the penetrating variety mentioned. It is safe practice to leave discolored dentine, covering a pulp, which is hard enough to give a distinct clink or ring to the instrument as it is cut. Such tissue is undoubtedly infected and contains waste products of bacteria which may be irritating to the pulp. The bacteria should be destroyed and the to-mains neutralized. The bacteria may be destroyed by placing a paste of creosote or oil of cloves and oxide of zinc over the tissue, and over this inserted the permanent filling. Until more is known of the chemistry of the to-mains in such tissue little more can be done than what is suggested.

INTERMEDIATE FILLINGS.

There is a growing tendency among careful operators to place some non-metallic or plastic substance between the vital tissues of the tooth and a metallic filling. Not a few operators have followed the practice of placing oxy-phosphate or gutta-percha

between amalgam or gold fillings and the tooth tissues. One of the important advantages of the gold or porcelain inlay is the intermediate cementing substance. The intermediate cementing substance does not conduct heat and cold as rapidly as the metal, and thus protects the pulp from shock. Besides the protection against changes of temperature, it protects the tooth pulp from a certain irritation that all metals have on living tooth structure. Every operator has noticed that some teeth are not comfortable under metal fillings for months after they are inserted, while in others there is little or no discomfort, and others again are never comfortable while a metal is in contact with the dentine. The author has more than once set up a violent pain by placing amalgam upon living dentine which was not relieved until every particle of the amalgam was removed and a soothing dressing inserted. It is wise practice to place some non-conducting substance between every large metal filling and the dentine. This cannot be done with large gold fillings in the anterior teeth, but we welcome the fact that large gold fillings are not now necessary to preserve the anterior teeth.

ACCIDENTAL EXPOSURES.

Later in this chapter the author will lay down the general rule that an exposed pulp should be devitalized. This rule admits of a few exceptions. An exposure by decay is hopeless. An exposure by a clean instrument cutting sound dentine which does not destroy more than a square micron of the membrane of Eboris in a young patient may be looked upon as a favorable case for capping. If the instrument has wounded the pulp until there is a hemorrhage, a capping covered with a permanent filling is court-ing trouble. If the tooth is fully developed, the removal of such a pulp is imperative. It might have remained comfortable for cleanliness cannot be secured, results are proportionably less likely to give as long service as if the pulp had been removed at once. Accidental exposures from clean instruments in teeth not fully developed, should be capped. If perfect dryness and surgical cleanliness cannot be secured, results are proportionately less likely to be satisfactory. Dry the exposure, using alcohol and warm air. Apply to the exposed surface an aseptic non-irritating, easily adapted substance. The most suitable are the varnishes, such as benzo balsam, sandarac, copal or gutta-percha, dissolved in oil of cajeputi. If the exposure is clean when made, there is no need of applying strong disinfectants or cauterants. The varnish should be covered with oxy-sulphate of zinc if there is room, if not, oxy-phosphate of zinc. Accidental exposures are so rare with careful operators that they would not occur more than once or twice a year and when they do occur, fully ninety per cent. of them ought to be immediately devitalized. This leaves the number to be capped very small.

FRACTURES OF THE TEETH.

Fractures of the teeth which immediately or subsequently involve the pulp are not infrequent. They usually occur in childhood or young adult life. They are more frequent among boys than girls, because boys play more hazardous games than girls and are generally more careless of their personal safety. The upper anterior teeth are more often involved than any others. Children often fall or have missiles thrown toward them which fracture one or more of their upper incisors. The fracture may not expose the pulp, but the shock is sufficient to cause it to die subsequently. In some cases the pulp dies from the irritation of the exposed dentine. If the pulp is not exposed by the fracture, the exposed dentine should be covered with oxy-phosphate of zinc, which should remain until there is an assurance that the pulp is not going to die from shock or irritation of the dentine. If the pulp has been but very slightly exposed in a tooth not fully developed an attempt should be made to retain the pulp alive until development is completed. If there has been much pain or protrusion of the pulp through the exposure, or more than a few hours elapsed since the accident there is little hope of success. Even slight exposures in mature teeth call for devitalization and all large exposures demand it.

TECHNIQUE.

Freshly exposed dentine becomes exceedingly sensitive in a few hours if the fluids of the mouth are in contact with it. This hypersensitive condition may be reduced to a normal state by dryness. The rubber should be adjusted and the dentine dried with warm air. Applications of oil of cloves will help to protect the dentine from stimulation by the air. Phenol will cauterize the filaments of the tubuls and protect them from irritation. When the exposed dentine has been thus protected and dried with alcohol, thinly mixed oxy-phosphate will usually adhere to a fractured surface if no contour of the cement it attempted. If space will permit, the index finger may be covered with vaseline to hinder the cement from sticking, and after the cement is placed in position by an instrument, it may be pressed to place with all the force thus attainable. The adherence of a cement depends upon the accuracy of its adaptation to a finely irregular surface. If an exposure is to be treated, the method described under accidental exposures may be followed, except that complete disinfection is necessary, which may take twenty-four hours.

DEVITALIZATION OF THE DENTAL PULP.

As soon as it was discovered that many pains in and about the teeth were caused by the pulp, attempts were made to destroy its vitality. The early methods seem to us barbarous, but even with present methods there is great room for improvement. They

do not cope satisfactorily with pulps which have been subject to paroxysms of pain from slight irritations for a long period. All the earlier methods were surgical and had been practiced for many years before the discovery of the action of arsenic on the pulp. Dr. Spooner, a dentist practising in Montreal, Canada, was the first to discover the value of arsenic in the devitalization of the pulp. He found that the destructive action rarely, if ever, passed beyond the apex of the tooth. This was one of the greatest discoveries ever made in Dentistry. It has made possible the restoration to usefulness of millions of teeth, which otherwise would have been lost, and has relieved more pain than many boasted general anaesthetics. The next advance in the method of devitalization of the pulp was the discovery of pressure anaesthesia by Dr. Funk, of Chicago, U.S.A.

The pulp may be devitalized by:

- (a) Surgery.
- (b) Poisons.
- (c) Anaesthetics.

Surgical methods of devitalizing the dental pulp have dropped into disuse since the introduction of arsenic for this purpose. A large exposure of the pulp was obtained and a wooden peg tapered to approximately fit the canal, the point placed at the exposure and the peg driven into the canal with a hammer and turned round slightly to dislodge the pulp which usually came out with the wooden peg. Some practitioners employ this method in a modified form for removing the pulps from anterior teeth upon the roots of which are to be placed dowel crowns. A notch is cut on the labial and lingual surfaces of the tooth at the neck with a knife edge stone, into these notches are placed the blades of a pair of cutting forceps, when heavy pressure is applied on the handles of the instrument the tooth is snapped off at the neck exposing the pulp. The pointed wooden peg is immediately driven into the pulp canal, rotated and withdrawn, and with it the pulp is likely to come. There is no pain in thus withdrawing the pulp. The shock of clipping off the tooth is so great that all sensation is lost in the pulp. Sensation returns in a minute or two. A barbed or hooked broach may be used to remove the pulp, instead of the wooden peg. Advantage may be taken of this period of anaesthesia in the case of fracture of a tooth in an attempted extraction. A broach should be at hand in every case of extraction if the pulp is alive. If the pulp is immediately extracted there will be no pain for the present at least, if the root is allowed to remain, and if further attempts to remove the root are made the patient will be relieved of the pain of touching the exposed pulp.

Many poisons have been used for the purpose of devitalizing the dental pulp, but none have proved as satisfactory as arsenic. Though arsenic has many drawbacks, it stands to-day as the most universally satisfactory method. Cocaine anaesthesia, stands

easily in second place. Among the objectionable features of arsenic as a devitalizing agent are its irritating properties, its failure to act upon inflamed tissue, the possibility of destroying more tissue than desired, its tonic or destructive action on the pericemental membrane, its frequent failure to completely devitalize all of the pulp and the long time required for its action. Drugs which devitalize tissue by their cauterizing properties are too slow of action and mostly too irritating to be of much value. They do not penetrate, a property so essential in devitalizing tissue some distance from the point of application. Among such drugs are caustic potash, sulphuric acid, hydrochloric acid, nitric acid, chromic acid, zinc chloride, nitrate of silver, and phenol. Among these phenol is the least irritating, while the strong acids are more distinctive. These drugs are only used where there is danger of too much destruction if arsenic is used, or where cocaine will not act. They have been highly recommended for the destruction of the pulps of deciduous teeth; like many another recommendation handed down from text-book to text-book, they are of little value. If the pulp of a deciduous tooth is to be devitalized, arsenic is the most satisfactory. There is no more danger in using arsenic where it is indicated in deciduous teeth than in permanent. The only requirement of the operator to safely use arsenic in deciduous teeth is a knowledge of dental Anatomy and Histology and the action of the drug.

This leads to a discussion of the action of arsenic when applied to living tissues. We are not here particularly concerned with whether arsenic devitalizes the pulp by congestion or by strangulation. It has been held in many long and cleverly written articles that arsenic caused the death of the pulp by creating an irritation which stopped or hindered the circulation of the blood in the veins. It has been as vehemently held that arsenic causes pulp to die by irritating the tissues until so much blood is forced into the pulp cavity through the fine opening at the apex, that the return circulation is cut off and the pulp is thus strangulated. For further discussion of this subject we refer the reader to works on Therapeutics.

The power of arsenic to devitalize a pulp depends upon: 1. The quantity and purity of the drug. 2. The vitality of the tissue to which it is applied. 3. The thickness of the tissue between the drug and the pulp. 4. The length of time it remains in contact with the vital tissues. 5. The physiological condition of the tissues to be devitalized. Each of these factors must be considered in every application of arsenic to devitalize a pulp. Success or failure depends more often upon the physiological, or perhaps, more often upon the pathological state of the tissue of the pulp than to anything else. The variations in the action of arsenic are so great that a sixtieth of a grain of the drug, if applied just beneath the enamel in a normal first molar may devi-

talize the pulp in twenty-four hours, while the same quantity of the same drug may not devitalize the pulp of another tooth in the same mouth, though it be applied to the exposed pulp and left in position for three months. The cause for variation is most often due to the state of the tissues of the pulp at the time of application. It is often sagely said that if a pulp is inflamed do not at once apply the arsenic, but reduce the inflammation and then make the application. The first difficulty is to make the diagnosis and the next is to reduce or correct the inflammation. Every pulp which has pained is not inflamed and every inflamed pulp does not pain, and if the inflammation has gone on to a passive congestion, neither time nor drugs will correct it. Sometimes a free hemorrhage will cause the tissues to absorb the arsenic or an anaesthetic, but there are many pulps, and unfortunately they are the ones upon which drugs have the least effect which will not bleed freely, and are the most sensitive to get at.

Since the action of arsenic on the pulp is so variable and depends upon so many factors no definite rule can be laid down for the quantity to be used or the time it should be left in position. If the application is made directly to a normal pulp, accidentally exposed of a young or middle aged patient, 1-100 of a grain of arsenic will devitalize it in twenty-four hours, while 1-20 of a grain may be applied to the dentine of a tooth with a pulp which has been hypersensitive to changes of temperature for months in the mouth of an old patient and be left for weeks with safety. Only general rules can be laid down for quantity, and time—1-100 to 1-20 of a grain. From twenty-four hours in incidious and immature teeth, to weeks in the aged and teeth with inflamed or partially deal pulps.

FORMS IN WHICH ARSENIC IS USED.

Arsenic as used for devitalization of the dental pulp is a fine white powder, which is sometimes adulterated with chalk. The powder may be mixed with antiseptic anaesthetic fluids, such as oil of cloves or creosote until a paste is made. A small quantity of this may be taken on a small round ended instrument and placed upon the desired spot in the cavity of the tooth to be treated. Some operators prefer to mix the powder and liquid for each application, while others mix enough at once to last for years. It is doubtful if arsenic retains its full devitalizing power if mixed for a long time. A small pledget of cotton may be moistened with creosote and then touched to the arsenic powder and carried to the cavity and sealed.

Pastes are made of arsenic, creosote, oil of cloves, cocaine and thymol. Instead of creosote or cloves, glycerine or lanolin may be used because these are solvents of arsenic. A small quantity of the paste is placed in the cavity of the tooth and then sealed.

The objections to all forms of pastes is the liability of their

being squeezed out of the cavity in attempts at sealing. For several years arsenic pastes were used in the Royal College of Dental Surgeons, and it was no uncommon thing to have several cases of arsenical poisoning for treatment every week. Since 1897, arsenical fibre has been used and cases of poisoning are so infrequent that many students graduate without having seen one. Arsenic fibre, when rolled up the size of a pin's head will contain sufficient arsenic to devitalize a pulp. For general use the fibre is the most satisfactory. It is convenient to handle, easily sealed in the cavity, does not tend to leak out of the cavity when sealing and is easily removed. The fibre should be sufficiently dry so that no fluid can be expressed from it in the act of sealing. It is made by working a short fibred cotton into one of the pastes.

METHODS OF APPLYING AND SEALING ARSENIC.

The method of application and the means of sealing depend largely upon the physiological state of the pulp, as gathered from the history of the case; the presence or absence of a cavity and its size and location.

Cavities of decay in teeth are the chief reason for the devitalization of the pulp. Cavities which are so deep that they endanger the vitality of the pulp, are usually large enough to make the problem of application and sealing a simple one, but in cases where a great deal of the tissue of the tooth has been lost and the gum tissue has fallen into the cavity as is frequently found in the disto-buccal surface of the lower third molar, the problem of application and sealing is a different one. It is often difficult on labial surfaces of the anterior teeth, and in excessive decay, combined with fracture in the bicuspid teeth. In the great majority of cases the application of arsenic is best made to the dentine in the cavity of the tooth, but if the cavity is so situated that the application cannot be made without the possibility of pressure on the pulp or leakage of the arsenic it is much wiser to drill a small hole through the enamel at a convenient location and in this pack the arsenic fibre and place a dressing of oil of cloves and phenol in the cavity where the pulp irritation occurred. This method will be found advisable in distal cavities of second molars and sometimes first and third molars. If the pulp has been paining it will soon subside and in three or four days the cavity may be fully excavated and if necesasry an application made directly to the pulp which may need to be left in position for days. If a pulp has been paining, it is not wise to make the application directly to an exposure if it exists, nor is it wise to attempt to make an exposure unless the operator suspects an ulceration or abscess of the coronal portion of the pulp. If the pulp has not been paining and seems fully vital, and exposed, or if it has been exposed surgically and bleeding freely the application should then be made directly to the exposure, otherwise the

application is better made to the vital dentine, and if possible an anodine applied on or as near as can be to the pulp. Incisor teeth, and especially lowers, do not give much room for application and sealing. A very small quantity of arsenic should be used, and if there is room this should be covered with a small piece of cotton moistened with cloves and the whole covered with cement. If the over-hanging enamel of the cavity is not broken away any more than is necessary to gain access to the cavity, it will assist greatly in retaining the dressing. The chief cause of pain in the devitalization of a pulp with arsenic is pressure on the pulp and the application being made to semi-vital or infected tissue, when there is not an exposure of vital tissue. When applications are made directly to an exposure, the effort to effectively seal usually results in pressure, while if the application is made to the dentine and an anodine applied to the pulp, pressure is not so likely to be made in the application.

Leakage of arsenic most frequently occurs at the time of application. This is especially true in proximal occlusal cavities. The gingival wall of the cavity is often not sufficiently dry to insure adhesion of the sealing, and as it must be pressed to place from the occlusal opening after the arsenic has been placed there is every chance for its displacement, and if paste is used it is almost impossible to avoid its being squeezed out of the cavity. In the anterior teeth the application can, in the majority of cases, be made from the labial or lingual aspect, and in deep cavities a small portion of the sealing may be covered over the gingival wall of the cavity and the application made occlusal to this, and the balance of the sealing applied.

SEALINGS.

Almost every kind of plastic sealing material has been used and advocated to retain arsenical applications. Among the most favored are: cement, gutta percha stopping, sandarac and cotton, chlora percha and cotton, wax and plain cotton. Each of these and others have their advocates. That material is most suitable which may be the most easily applied without pain, and will the most securely seal the application. Among these, cement takes first place for small cavities and cavities upon which mastication might dislodge a less strong sealing. For all cavities upon which little or no force of mastication can be applied and which are deep enough to retain it, sandarac and cotton is most suitable. It is the most easily applied and most securely attaches itself to the tooth's surface. If arsenic fibre is to be sealed with sandarac and cotton it is well to cover the fibre with some substance which is insoluble in alcohol, so that the sandarac may not spread through the fibre and prevent it from coming in contact with the vital tissues. If glycerine or lanoline is used in the fibre, or if it is covered with a few shreads of cotton dipped in vaseline or creos-

sote, cloves, phenol, there will not likely be any penetration of the cotton by the sandarac. Gutta percha may be used, but it does not usually become sufficiently plastic at a moderate temperature, and requires so much pressure to adapt it to the cavity wall that it is hard to avoid pressure on the pulp.

TEETH WITH FILLINGS.

If a tooth is filled and the pulp needs to be devitalized the opening to the pulp should be made, having regard to the convenience of getting access to the pulp and the strength of the tooth after such an opening has been made. Usually the nearest approach to a paining pulp in a filled tooth is through the filling, which can be removed with less pain than cutting through vital dentine. If an exposure exists under the filling or can be easily made, the pain can be at once relieved. If the pain is not severe and the location of the filling is not such as will give free access to the pulp, it is better practice to cut through the enamel to the dentine at the most convenient location and there apply the arsenic. If devitalization is advisable for any other reason than to relieve immediate pain, and the filling is in good condition, the only consideration left is the strength of the tooth, after a sufficient opening has been made to remove the pulp. If good proximal or proximo occlusal fillings exist in the incisors or cuspids it is generally advisable to open the pulp chamber from the lingual aspect. If bicuspid have double proximo occlusal fillings and the pulp chamber is opened from the occlusal either cusp will sooner or later break away. It is better in these teeth to gain access to the pulp through the mesial filling, even though it be perfect. Upper molars are best opened slightly, mesial to the central fossa, whether the filling is a good one or not. There is room in the molar teeth to cut into the pulp chamber from the occlusal without making the tooth so weak that it is liable to fracture. Lower molars may be opened in the mesio-occlusal aspect, regardless of the filling. In most cases of mesio-occlusal cavities or fillings if the pulp must be removed to cut away the mesio-buccal cusp. This is especially advisable if the tooth is tipped lingually or the cusp has been undermined by caries.

NO CAVITY OR FILLING.

If no cavity or filling exists and it is thought advisable to remove the pulp, the opening should be made at the point in the tooth's surface which will give the freest access to the pulp chamber and the root canals, and will at the same time not reduce the strength of the tooth any more than possible. Having regard for these factors the anterior teeth should be opened on the lingual surface just occlusal to the cingulum. If the teeth have been much worn by attrition, as sometimes occurs in the aged, the

cutting edge may be selected as the point of opening, this is especially true in the lower incisors and cuspids. When an opening on the lingual is used through which to remove the pulp, much care must be taken to remove all the pulp from the coronal portion of the tooth, otherwise discoloration of the tooth will occur.

If the pulp is alive, there is no need of cutting vital dentine to expose the pulp to apply the arsenic, all that is necessary is to cut a small opening through the enamel with a drill and pack this with arsenic fibre. In three or four days this may be removed and the dentine cut away without pain, to a sufficient depth to insure devitalization in forty-eight hours more. There are few cases in which pulps are so sensitive to thermal changes that it is impossible to either grind or drill a hole sufficiently deep to retain arsenic without causing severe pain. These cases are found in highly sensitive people who have pyorrhea, the neck of the tooth have been exposed for some years. The surface may be wiped off with cotton and a little piece of fibre placed against it, and over this put a pledget of sandarac and cotton, and tie the whole to the tooth by three or four rounds of floss silk. In a few days the surface will be so disensitive that an opening may be made deep enough to make a proper application.

Since arsenical application nearly always gives more or less irritation and sometimes gives the patient violent pain, it is wise to warn them that they may have some discomfort with the tooth for an hour or so, but if it becomes violent they should call for relief. With some experience the operator will be able to foretell if much pain is likely to occur. In cases of children and patients who are in a highly nervous state, it is well to tell some other member of the family of the possibilities of pain, otherwise they will give themselves and the dentist unnecessary annoyance.

SOME THINGS IN PROSTHESIS.

BY A. W. THORNTON, D.D.S., TORONTO.

Read before the Canadian and Ontario Dental Associations, Toronto, May 31, June 1, 2, 3, 1910.

Much is being said at the present time and much written urging the necessity of better hygienic conditions in order that the human family may make and enjoy the most and the best of life. The hygiene of the mouth, teeth and associate parts has not been overlooked, but until pain ceases to be unpleasant, and knowledge becomes universal, and a love of the beautiful is looked upon as the highest evidence of culture, just so long will people neglect their teeth, these organs will decay and be lost, either with or with-

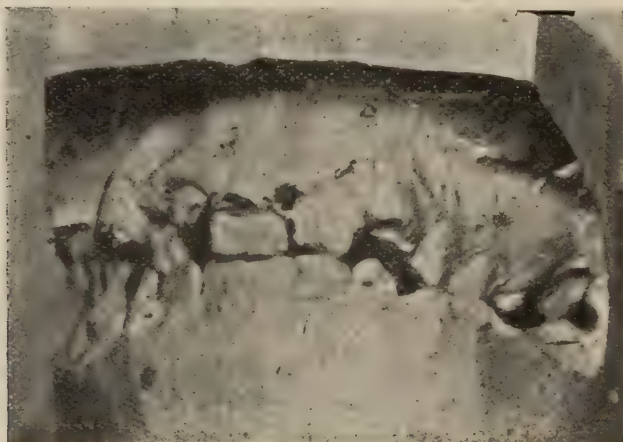


Fig. 1. Is the case of a young lady about eighteen years of age. The teeth were not only very irregular, but there had been a very marked interference with the development of the enamel on all the incisors and cuspids. The cuspids were outside the arch, and higher up in the alveolar process than the other teeth. The molar teeth being badly broken down, the only thing to do was to restore the anterior teeth by crowning. The cuspids of necessity had to be made long to bring the incisal edge in line with the incisors, but a long upper lip, covers this defect.



Fig. 2. Shows the restoration of the upper jaw.

out surgical intervention, and prosthetic restorations will remain a very considerable and necessary part of the work of the dentist.

In very recent times there has been a revival along the line of prosthetic dentistry and the best minds of the profession are grappling with the difficulties of this long neglected subject, and to the credit of these "seekers after truth" be it said that much is being done to remove it from the realm of a hap-hazard and undesirable field of action, and to place it upon a basis truly

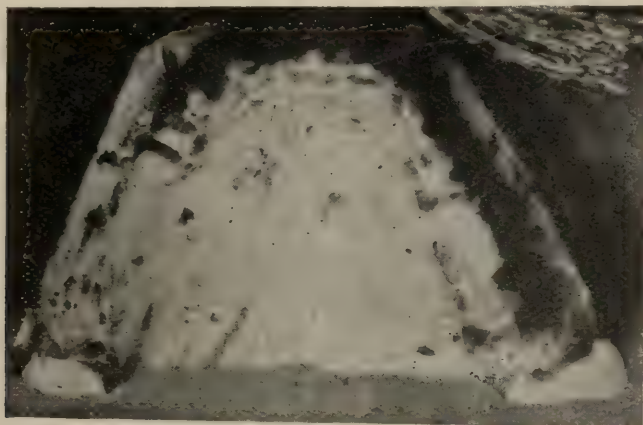


Fig. 3. A bridge had been worn, extending from the second bicuspid to the third molar. The molar was lost, and a new appliance became a necessity. A shell crown was made for the second bicuspid, and a rubber plate was made to supply the missing molars. The plate was attached to the second bicuspids by the use of a Roach attachment. A gold bar extended to the opposite side; and to the end of this a small band was soldered to clasp a bicuspid crown, which supported one end of a "hygienic" bridge. A U shaped piece of clasp metal, with one end resting on the occlusal surface of the bridge, and the other end beneath it, prevented tipping.

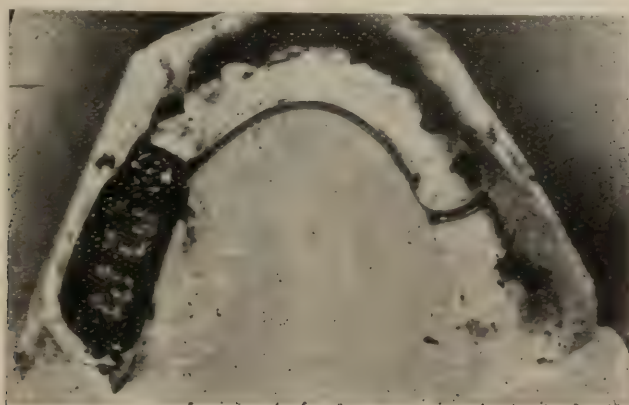


Fig. 4. Shows the piece in place.

scientific and second in importance to no other class of dental operations. The field of prosthesis is sufficiently wide to afford scope for the greatest mechanical genius with all his varied gifts, and so diversified are the conditions presenting that no single operation could be adopted as a standard and applied without

modification to meet the requirements of any considerable number of cases.

Perhaps no improvement of recent years has been of greater value in prosthetic work than the wire connecting the lateral portions of a lower denture supplying the prosterior teeth.

I need not dwell upon the injury done to the anterior teeth by the connecting portion of such a partial lower denture as ordinarily constructed. Fitting as it usually does close to the necks of the teeth and in close contact with the gum tissue the inevitable result is recession and inflammation of the gum tissue and abrasion and decay of the teeth with which the connecting portion of the

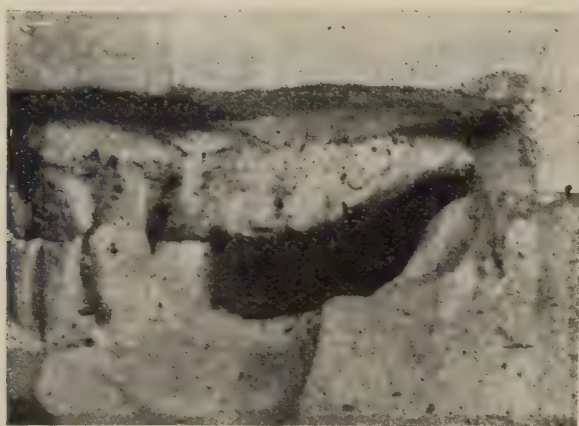


Fig. 5. Shows the "bite" with a partial upper plate, the incisors of which closed behind the anterior lower teeth, giving a bull-dog expression, anything but natural.



Fig. 6

Figs. 5, 6. and 7, present an interesting case. As the result of an abscess, on the left side, in the lower jaw, a strong cord-like attachment connected the cheek to the top of the alveolar ridge, making the wearing of a plate on that side, impossible. A shell crown was put on a bicuspid, on each side. A rubber plate was made, with a metal bar extending from side to side. A Roach attachment on the right side and a gold clasp on the left side, (with a spur to the occlusal surface, to prevent downward displacement), completed the lower case as shown in Fig. 6.

denture comes in contact, and as a result of these pathological conditions the premature loss either with or without surgical intervention, of these all important organs. These unfavorable conditions may be entirely obviated by using a bar of gold or iridio-platinum wire, about 14 gauge. In gold work this bar may be soldered to the two lateral portions of the plate before attaching the teeth, while in rubber work the bar may be vulcanized into the rubber and the attachment made secure by roughening the wire, by bending the ends inbedded in the rubber or by soldering to the wire some projecting points, such for instance, as the pins of broken porcelain teeth.

This wire should be placed as low as possible; not however so low as to interfere with the action of the muscles of the tongue and the lower part of the oral cavity. In fitting, it is not necessary to attempt to adapt it accurately to the model, indeed, care must be taken to avoid this and it should be kept from 1-8 to 3-16 of an inch from the plaster cast, otherwise there will be some irritation to the underlying soft tissues, which have been compressed during the process of taking the impression.

This same plan may be followed, even where one or more teeth are to be replaced between the two lateral portions. A piece of gold plate may be struck up to fit over the ridge where the teeth are to be replaced. This may be soldered to the bar, and plate teeth may be soldered to this piece of gold plate, or small loops may be soldered to it for the attachment of vulcanite.

While no hard and fast rules can be laid down governing prosthetic restorations, a few general principles may be given, some or all of which must always be borne in mind if the best results are to be obtained. In such operations our aim should be,

1. To reduce the amount of foreign matter to the minimum.
2. To give a condition of fixity to the appliance and a sense of security to the patient.
3. To enable the patient with the least possible trouble to preserve in hygienic condition the natural organs and tissues of the oral cavity.
4. To supply an appliance that will be easily kept clean.

When we consider that the pressure which can be exerted with a denture, supported wholly by the alveolar ridges and the adjacent parts is only from 1-10 to 1-6 as great as the pressure which can be exerted by the natural teeth, we can easily understand why continuous effort has been made to use the natural teeth as supports and abutments in prosthetic restorations. It is largely because of this fact, and to meet some of the principles already enunciated, that bridge work has appealed so strongly to dentists and their patients.

In recent years many appliances have been suggested by means of which advantage might be taken of remaining natural

teeth to sustain part of the pressure exerted by the jaws in mastication, and at the same time to reduce the size of the denture to the smallest possible dimensions, and also to give that fixed condition to the appliance which patients so much appreciate.

Of these appliances perhaps none are so universally applicable or so easily adjusted as the Roach attachment suggested by Dr. F. E. Roach, of Chicago. The appliance consists in brief of a ball and split cylinder. The ball at the end of a short shank fits



Fig. 7. Shows a corrected articulation, a new plate having been made for the upper jaw.

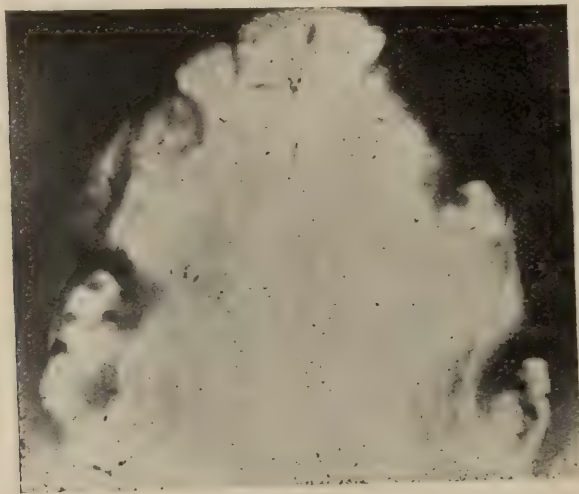


Fig. 9. Shows the model of an upper jaw, for which a gold plate was made. A Roach attachment, with a shell crown on the bicuspid; and a gold clasp on the molar, made a very firm appliance for a man over sixty years of age.

accurately into the cylinder and one part may be permanently attached to a natural tooth by means of a crown, an inlay, a Carmichael attachment, etc., while the other may be securely fastened to the partial denture, whether made in vulcanite, gold, porcelain or aluminum.

I shall not attempt a detailed description of the method of

using these attachments. I shall have thrown on the screen a number of models showing some cases in which these attachments have been used and also some other cases of prosthetic restoration. The cases are some that have occurred in my practice during the last few weeks, indeed since the programme committee asked me to contribute something during this meeting. I have nursed some of these cases along so that I will have the pleasure of showing you later the finished product as worn by the patient.

Having been in communication with Dr. Roach about some other matters for the past couple of months, I suggested to him that he might send me a number of specimens of partial dentures where these attachments were used. This Dr. Roach has very kindly done and I will later on in the convention have the pleasure of showing you these pieces. You will understand that the



Fig. 8. Shows a model for which two bridges were made. On the right side a shell crown on the molar, and a Carmichael attachment, (cast) on the cuspid, makes a very desirable appliance. On the left side, there is a shell crown on both molar and bicuspids. A large inlay was cast for the incisor, and into this a square iridio-platinum spur fits snugly. The spur simply rests in a pit in the inlay, made to receive it, but is not attached to it in any way. This gives ample support to the anterior part of the bridge.

illustrations on the screen are meant to show, not the beauty of the models, but some practical cases in ordinary every day practice. Those of you who attend conventions know how papers are sometimes padded out with obsolete or irrelevant matter and you know, too that the things which appeal most strongly to the average man are the things which he can grasp and carry away, and which suggest to him methods of procedure which he may with advantage adopt or avoid.

Selections

SELECTION OF FILLING MATERIALS AND METHODS OF INSERTING THEM WHEN TEMPORARY WORK NEED NOT BE CONSIDERED.

BY C. N. JOHNSON, M.A., L.D.S., D.D.S., CHICAGO, ILL.

Read before the annual meeting of the Chicago Odontographic Society, January 28, 1910.

There never was a period in the history of the profession when it seemed so difficult to properly place some of the materials in use for filling teeth as it does at the present time, nor to say definitely just what method or material shall be used in each given case. Some of the methods in use today and which promise very substantial results are, as a matter of fact, only in their evolutionary stage, and no man can predict with certainty just what their ultimate status will be. The suggestions presented for your consideration to-night are not offered with the idea of solving the question for all time or, in fact, for any appreciable time, but merely to point out what seem to your essayist the significant factors governing the most approved practice of the day.

It is understood from the title of the paper that temporary filling materials are not to be considered which eliminates from the discussion such materials as oxyphosphate of zinc and gutta percha, and places on the doubtful list the silicate cements. There seems to be much confusion in the minds of the profession regarding the precise status of the latter material, some operators reporting nothing but disastrous results from its use while others claim a very encouraging measure of success. This emphatic disapproval on the one hand and equally emphatic endorsement on the other may in a measure be accounted for in the fact that when it is a failure it is a most dismal failure, and when it does succeed it seems to furnish one of the most ideal filling materials we have ever had for certain classes of cavities exposed to view and not subjected to severe stress. Of one thing we may rest assured, that it cannot be successfully built out into contours to restore the incisal or occlusal angles of teeth as a regular rule of practice. Its tendency to splinter off under stress is too pronounced to permit the conservative operator to depend on it for this class of work. There also seems with most of these cements to be a determined persistency to shrink and this, of course, leads to leakage around fillings which ultimately ends in failure. Added to this is the serious discoloration which we occasionally see occurring in the most unaccountable manner, and we have a series of limitations which make careful men pause before using this material extensively. On the other hand we have a reverse picture. Some fillings appear after several years' service to be in good condition, with no apparent shrinkage, no discoloration and no solution of their surfaces which can be detected. The margins seem per-

fect and the blending with the enamel surface is such as to make a filling which is less conspicuous even than a porcelain inlay. Such results as these give a certain measure of basis for the enthusiasm which some operators have developed in favor of this material, and yet, as has been just said, when failure does come it is so disastrous as to temper the highest enthusiasm.

What causes this apparent discrepancy in the behavior of the silicate cements I am not prepared to say. Some operators unhesitatingly state that it is all due to the manipulation, but if this is true it must be admitted that this material is so exacting in its demands that it constitutes a very serious limitation to its usefulness as a material with which to save teeth, because we find failures occurring in the hands of the most conscientious operators. A series of careful experiments should be made with this material by some of our investigators to see if more light cannot be shed on its physical characteristics and thus give us a better basis upon which to judge of its usefulness and the most approved methods of manipulating it.

With the silicate cements still placed in the balance we come to a consideration of those materials about which more is definitely known. For saving the anterior teeth we are given three methods, each of which has its advantages under certain indications. We can use the ordinary gold foil fillings, the porcelain inlay, or the gold inlay. This at once brings up a discussion of the relative value of foil fillings and inlays—a subject which has occupied the attention of the profession quite extensively for several years. It is not necessary to go deeply into this discussion on the present occasion, but I should like to ask your forbearance while I reiterate a statement I have frequently made and the truth of which impresses me more and more as I study the subject. With all the beautiful results which we are to-day securing with inlay work, results which we fondly hope and confidently believe will prove sufficiently permanent to justify us in continuing this kind of practice, we should not forget the fact that there has been no method or material yet introduced which for absolute reliability in tooth saving properties can be compared with a perfectly adapted, perfectly condensed, perfectly contoured, and perfectly finished gold foil filling. And I also believe that whenever this fact is lost sight of in the conduct of a practice there is something tangible lost which militates against the greatest ultimate benefit to the patient. To gain the closest apposition of gold to the dentine and enamel walls of a cavity is to seal that cavity more securely and permanently against leakage than is possible with any other material at our command. Much has been written about the disadvantages of gold in contact with cavity walls, but this is true only of those rare cases of extreme hypersensibility and in deep cavities which come near to involving the pulp. Gold, then, must still remain the most reliable of all filling materials wherever a

perfect technique may be secured in its use—but just here comes in the rub, and it must be acknowledged to be a rather severe and compelling rub. To get a perfect technique with gold in many of the cases which come to us the operator must sacrifice more of himself and his patient than seems justifiable in the highly wrought nervous organisms of the present day. Even if the dentist were willing to sacrifice himself on the altar of the highest ideals and greatest perfection of results he would still have his patient's attitude to reckon with, and this attitude is something that cannot be wholly ignored. It is true that the dentist should take a firm stand against dictation on the part of the patient when the point at issue is one which seriously affects the future welfare of the patient, and yet when patients quite generally take the stand that they will no longer submit to having large gold foil fillings inserted when inlays can be used instead, it must, in a large measure, influence any observant operator. To stand out against a sentiment so widespread and pronounced as this is growing to be is to alienate many excellent patients and confine one's efforts to a few, which is surely not in the line of doing the greatest good to the greatest number. Then there is another consideration in this connection, the necessity of a perfect technique with gold in order to secure a good result, and the difficulty of obtaining this in very many of the cases which we are called upon to treat. People are becoming more and more intolerant of long sittings, and while improved methods of technique have materially shortened the time necessary to insert a gold filling, yet it is at least much longer in large restorations than to have an inlay inserted. If we induce a patient against his will to sit for a large gold filling he becomes restless and more or less impatient, and this seriously interferes with a good technique. Then there are many cavities so located and muscles of the mouth so constituted that even with a willing patient it is difficult to perfectly insert foil, which naturally results in work not up to the highest standard; and if it is true that gold, when properly inserted, is the most reliable of all filling materials, it is equally true that an imperfect gold filling is one of the most disappointing..

There can be no question that a well inserted inlay is greatly preferable to a poorly inserted filling, and in those cases where a good technique can be obtained with an inlay and not with a filling the former should be used in every instance. And in this connection it may be stated that to-day many operators are accomplishing better results for their patients by the inlay method than they ever did by gold filling, due to either one of two things—that their natural technical tendencies fit better into the manipulation of the inlay than of the foil filling, or that they were never able to sufficiently control their patients to get a good technique with gold.

But let us consider more specifically what we deem the most

suitable filling material for the different classes of cavities. In incisors the question of esthetics enters more and more as a vital factor for consideration in deciding the selection of a filling material. Patients are becoming more sensitive about having any evidence of operations on the teeth apparent to the public gaze, and this is only in line with a higher cultural development of our civilization. We should therefore co-operate with our patients to the fullest legitimate extent in this direction, though we should never jeopardize the usefulness of a tooth by placing in it something less substantial than gold unless the gold is offensively conspicuous. Porcelain inlays seem to have waned appreciably in professional esteem, and there is a danger that in the swinging of the pendulum some of their virtues may be ignored. In all exposed cavities in anterior teeth in patients of high esthetic sensibilities porcelain will be much less conspicuous than gold and should therefore be used. But it is always at the sacrifice of stability and permanence that it is substituted for gold, and this should never be ignored in its selection. One reason why the profession is apparently turning a cold shoulder on porcelain is because of the unsatisfactory condition of the margins of many porcelain inlays after a few years of service. This relates not only to a chipping of the porcelain at the margin, but to a discoloration of the line between the inlay and the enamel. In many mouths we find a tendency to this discoloration, no matter how fine the line may be between the inlay and tooth, and this with a painstaking and discriminating operator proves a source of embarrassment even when the patient makes no complaint regarding it. In fact, in some instances this discolored line develops so slowly that the patient is less impressed by it than is the dentist, and yet in observing the condition of many porcelain inlays after a few years the frequency of this dark line has quite a natural tendency to influence an operator against using them. But with all of this, porcelain, if well inserted, is less conspicuous than gold, and the lesson should be to take the greatest pains with porcelain and secure the most perfect technique. It may not be possible with the best technique to always obtain satisfactory results, but the better the technique the farther removed from those glaring defects which have brought discredit upon this method.

Cavities with large labial exposures, whether proximal, incisal, or gingival, in individuals who show their teeth extensively and who are esthetic in their tastes should be filled with porcelain, but all other cavities in incisors should be filled with gold. It should always be borne in mind that the margins of gold fillings are more satisfactory than are those of porcelain inlays, and that gold is more reliable in saving teeth, so it should be used in every instance where esthetic considerations do not predominate. There are many instances where the incisors are not exposed to view to the gum line even when the patient laughs, and in these cases cavities occurring

in the gingival third of the labial surfaces should be filled with gold. In a very careful study of the behavior of gold and porcelain in these cavities in the labial surfaces, I have been so impressed with the better condition of the gold over the porcelain after a few years' service that I am impelled to strongly urge the more general use of gold where it is not too noticeable. In the case of men who wear a moustache it is frequently possible to employ gold in nearly all cavities without making it conspicuous.

As to the decision between gold inlays and fillings where gold is to be used in incisors it is once more a question of technique. If the patient can be properly controlled so as to permit of a perfect operation, gold foil can usually be employed to better advantage than a gold inlay and with more certain results, but in some instances the difficulties of securing a good technique with foil are so great that a better result can be obtained with an inlay. In a general way the larger the cavity the greater the leaning toward an inlay, while the smaller the cavity the more the argument is for a filling. As has already been stated, the insertion of very large foil fillings is not readily tolerated by the average patient of the day, and so far as the writer's experience has gone to attempt to insert very small inlays, whether of porcelain or gold, is exceedingly unsatisfactory. That method should be employed which promises the most permanent results, irrespective of previous opinions or prejudices, and each case should therefore be studied separately and be considered as a law unto itself. This is necessary to avoid the too common tendency to fall into ruts and to practice in a routine way from day to day.

Cavities occurring in the molars or bicuspid should be filled with either gold foil, gold inlays, or amalgam. Porcelain has no place in these teeth unless it is in rare instances in exposed positions in bicuspid. It has gone down too often in fracture and defeat when exposed to the stress of mastication to longer permit of argument on its behalf in these positions. In line with the statement just made as to the undesirability of small inlays, all pit and fissure cavities should be filled with foil unless the tissue has become involved so far beyond the fissures as to make a large and complicated operation. With many of the pit cavities the attempt to insert inlays as some operators are doing, seems to the essayist extremely ill-advised. To properly prepare these cavities for inlays involves much more cutting than for fillings, and the aggregate time consumed in the operation is all in favor of the filling. Added to this is the incontrovertible fact that the finished product is more perfect in these cases with the filling than the inlay, and it leaves no argument in favor of the inlay, except the untenable one of an undue predilection on the part of the operator in favor of inlay work.

The debatable ground seems to your essayist to be encountered when we approach cavities involving both the proximal and

occlusal surfaces, and here there is no disguising the fact that the pointing of the finger-board is in the direction of inlay work. The problem of gaining a good technique with gold foil in these cases is a different one from that of the small pit cavities, and the operation is more severe on the patient. When you increase the tension on the patient you at once develop a restlessness which interferes with good work, and in every case where the operator can secure a good technique with inlay work and not with foil he will serve his patient better with the inlay. This does not alter the fundamental fact before stated, that a perfect gold filling is more reliable than an inlay. With the best inlay there is always the cement to be reckoned with, and this is not always reliable or uniform in its behavior. Inlays sometimes loosen and fall out in most unaccountable ways, even when apparently well inserted and by the very best inlay workers, though it may be confidently predicted that the percentage of such failures will grow less as the principles of inlay work are better understood and the quality of our cements is improved.

There is one condition sometimes met with in these complex cavities in which decay has extended very much wider buccolingually in the gingival region than it has near the occlusal surface, and in which there is little undermining of the tissue toward the occlusal. To cut such a tooth away sufficiently to receive an inlay is little short of vandalism, and the resultant weakening of the tooth from an operation of this kind can never be compensated for by any of the advantages of inlay work. It may be argued that in many of these cases the extent of the cavity, particularly where there has been some recession of the gum and much extension of the decay rootwise, introduces the factor of a difficult and nerve-trying operation with gold foil. This is true, and there are frequently cases where the condition practically precludes the use of foil. It is in such cavities that amalgam has its widest and most legitimate field of usefulness.

It is unhesitatingly stated at this time that amalgam can be made more serviceable in these extensive cases than either foil or inlays—more serviceable than foil because a better technique can be gained with it, and more serviceable than an inlay because it leaves the tooth stronger. If the cavity is properly prepared for amalgam, a good alloy is used, the filling well condensed and built into a proper contour, and then subsequently carefully polished, it is an operation which will save many badly decayed teeth and do it with little nervous tension on the patient. But the simple fact must be faced that very few operators will give it this attention. We may moralize about the necessity of doing this and the lack of conscientiousness in the operator who does not do it, but we cannot change the fact. It is a condition and not a theory we are facing. There seems to be something inherent in the character of amalgam which does not draw out the

artistic or esthetic in an operator, and, try as we may, there are many of us who simply cannot put the enthusiasm into our amalgam work that we can into gold or porcelain. As a personal point of view, your essayist wishes to state at this time that while he has felt obliged to use much amalgam through financial consideration for his patients, and while he has tried to do conscientious work with it and has saved very many teeth which he believes otherwise would have been lost, yet he frankly admits that he has never found it possible to develop any degree of enthusiasm for the material, and has never been able to perform an operation with it which brought to him the inspiring glow of satisfaction which has frequently rewarded him at the completion of a gold filling, or a gold or porcelain inlay. He has often taken himself seriously to task for this apparent defect in his make-up as an operator, and yet experience would seem to prove that there are very many others in the profession who are influenced as he is by amalgam. This may be accounted for in part by the fact that an amalgam filling cannot be properly completed and polished at one sitting. The operator cannot obtain solidity and resistance to the filling at the time of inserting it. He must dismiss his patient with the feeling that it is more or less insecure till it has crystallized, so much so that he usually instructs the patient not to masticate on it for a few hours. When the patient returns for another sitting some of the interest in that particular operation is gone and the operator approaches the difficult procedure of polishing the filling without the consecutive enthusiasm which is developed by the insertion of a gold filling or an inlay. The rhythm of the operation is gone, and the polishing is seldom so satisfactorily done—if indeed it is done at all—as it would be if it had been possible at the time the filling was inserted. With a gold filling or an inlay the final touch can be given it at the same sitting it is inserted, and the patient dismissed with a sense of accomplishment and completeness.

The amalgam filling then can never appeal to an operator of high artistic and esthetic sense, and must remain as it has in the past, a useful rather than an inspiring material. That it is useful can never be denied, and yet since the advent of the cast gold inlay there are fewer indications for its use. Aside from the class of cavities just referred to—those in which gold foil would be too difficult or exhausting and gold inlays impracticable—there is only one other consideration to justify its use, and that is a financial one. Amalgam has proved and will continue to prove a serviceable material with which to save teeth for those who cannot, or who think they cannot, afford the more costly methods; and yet it should be the function of the dentist to educate people to the idea that the best is none too good for their personal preservation and that there has never yet been devised any material which is quite good enough to go into a human tooth.

For cavities occurring in the gingival third of the buccal surfaces of molars the gold inlay offers the best solution of the problem. The location renders it difficult to do perfect work with foil, and if there is any place in which amalgam has proved unsatisfactory it is here. The slightest tendency to shrink on the part of the material draws the filling away from the mesial and distal extremities of the cavity and starts a leak which ultimately leads to failure.

The title of this paper includes the methods of inserting the various filling materials under consideration, but the length of time consumed, whether judiciously or otherwise, in dealing with their selection prohibits any reference to this phase of the subject. Much of a practical nature might be given at this time, particularly with reference to simplified methods of inserting gold foil, and to the most efficient technique in gold inlays. It seems to the writer that the majority of members of the profession are not living up to their highest possibilities or taking advantage of the best there is in the various materials presented for our use. The blind following of any one method to the exclusion of all others is not conducive to a symmetrical development of the dentist himself as far as his professional ability is concerned, nor to the best interests of the patients whom he is called upon to serve. And yet this much must be said—and it is the key to the entire question—that it is as much the skill of the operator or his peculiar ability to manipulate certain materials as it is the material itself which counts for or against success. With any of the materials extensively in use to-day it is possible for a capable and conscientious operator to do work which will prove of great service to the patient, while with a careless and unskillful man no material can be relied upon to give satisfaction.

It is as much, then, a matter of manipulation as it is of material, and this fact should urge us on to the achievement of a more perfect technique in the use of any material which appeals to us. But it should never narrow us to one material, because the virtues of all the materials at our command are none too great to successfully meet the various cases which comes to us.

PRACTICAL HINTS.

ALL-PORCELAIN CROWNS:—The weak portion of an all-porcelain crown or dummy is the lingual portion and where the bite is very short they should not be employed. In the majority of cases, however, the bite is of sufficient length to warrant their use and unless the bite is rather extreme length, the lingual of these all-porcelain teeth should be supported by letting the metal come up well around this surface. This applies especially to dummies in bridgework.—R. E. MacBoyle, Chicago.

A SIMPLE THING:—So many times we see a patient give evidence of pain when the pellet of cotton is dipped in alcohol and then placed in a sensitive cavity, we all know the reason. Now if the same pellet after saturating with alcohol is passed through the gas flame on the bracket table and allowed to burn just an instant, then put out, it warms the alcohol and does not char the cotton, injure the pliers or materially decrease the quantity of alcohol and the results are much better.—James E. Dolson, Evans-ton.

TO CLEANSE BARBED BROACHES:—Lay broach on a wooden block having a plane surface and use a stiff bristle brush moistened in alcohol or water; brushing "with" the barbs (not against them), will quickly dislodge all debris and will not injure the barbs. They may then be sterilized by boiling, or disinfected by any of the ordinary disinfecting solutions, and placed in a clean box with a closely fitting cover, and are then ready for immediate use when needed.—P. G. Puterbaugh.

MAKE YOUR OWN INLAY INVESTMENT:—An excellent investment material is made by: One part plaster paris, one part fine powdered silex, one part hard coal ashes. The silex should be very fine; and the hard coal ashes should be sifted very fine, select ashes that are free from unburnt particles of coal, measure by bulk. A good way to mix this is by putting in a stiff paper bag and shake it like you would a mixture in a bottle. I have used every investment that I have heard of but find this the best in every respect.—W. F. Reber.

THE SUBJECT OF SYPHILIS:—Is one that is of interest to both medical and dental practitioners alike, for during the course of syphilis at some time or another it is almost certain to manifest itself by symptoms in the oral cavity. Indeed, the symptoms as they appear in the mouth may be the first for which the person affected seeks relief or advice, either from his physician or dentist, and a certain degree of familiarity with the clinical appearances of the disease, as it presents itself in the oral cavity, at least, should be the possession of every dentist. I trust the time is not far

distant when every course in dental surgery will include an exposition of the subject of syphilis in its relation to dentistry.— O. H. Forester, Milwaukee, Wis.

THE REQUISITES OF A SUCCESSFUL CROWN ARE:—A good adaptation to root with reference to peripheral continuity and root-end apposition in dowel crowns, freedom from peridental impingement, close contact with approximating teeth, at the same time preserving proper interproximal space gingivally, correct occlusion, anatomical form and alignment with adjacent teeth, adequate strength and compliance with the cosmetic requirements. The same may be said of the bridge, with the additional observance of the general rule that the number ofummies supplied should not exceed the number of abutments and piers. Assuming, of course, that the preliminary requirements of healthful conditions have been established.—

LITTLE INSTRUCTION IS GIVEN IN ECONOMICS TO THE STUDENT IN DENTISTRY —Little instruction is given in economics to the student in dentistry while preparing for his life work. A very few schools do attempt training in this useful branch, but the number is so few that it is almost a negligible quantity. A student should not be turned out to commence his life work without giving him knowledge of practice building and some instruction as to a scientific method of making charges for his services. Few dentists ever fully learn the latter. To be highly qualified to practice one's profession, and at the same time have a financial sense, does not, in my opinion, necessarily constitute a dual existence. The two combined give the superior man. They are a combination forming, when properly adjusted, a perfect whole. Continuous growth, mentally, demands remuneration to give opportunity for better facilities for this growth.—T. L. Gilmer, Chicago.

Proceedings of Dental Societies

RESULTS OF THE DOMINION DENTAL COUNCIL EXAMINATIONS.

The following candidates passed the whole Examination, and will receive their Dominion Dental Council Certificate:

A. L. Church, Clarence Eastwood, O. Elliott, P. J. Healy, G. J. Hope, A. C. Kerr, J. C. King, A. E. Slack, R. E. Stewart, H. A. Wood.

The following candidates passed in the following subjects:—

P. G. Atkinson, passed in Anatomy.

F. L. Bass, passed in Anaesthetics and Materia Medica, Anatomy, Physiology, Histology, and Bacteriology.

E. O. Bond, passed in Anatomy.

A. J. Brett, Pathology and Therapeutics and Anaesthetics and Materia Medica and Medicine and Surgery.

J. B. Carmichael, passed in Operative Dentistry and Prosthetic Dentistry.

Thos. Cowling, passed in Anatomy, Physiology, Histology and Bacteriology.

A. B. Crowe, passed in Anatomy.

T. W. Dawson, passed in Operative Dentistry, Prosthetic Dentistry, Clinical and Papers, Orthodontia, Pathology and Therapeutics, Medicine and Surgery, Jurisprudence and Ethics.

R. S. Dicker, passed in Anatomy, Physiology, Histology and Bacteriology.

F. L. Downing, passed in Anaesthetics and Materia Medica, Physics, Chemistry and Metallurgy.

G. R. Gilroy, passed in Anaesthetics and Materia Medica.

R. S. Hamilton, passed in Orthodontia, Jurisprudence and Ethics.

E. A. Highly, passed in Anatomy.

W. S. Lackner, passed in Anaesthetics and Materia Medica, Physics, Chemistry and Metallurgy.

J. A. Liscunt, passed in Anatomy.

W. G. Manning, passed in Anatomy.

W. S. Madell, passed in Anaesthetics and Materia Medica, Physiology, Histology and Bacteriology.

H. S. McCartney, passed in Operative Dentistry, Prosthetic Dentistry, Clinical and Papers, Orthodontia, Pathology and Therapeutics, Physiology, Histology and Bacteriology, Jurisprudence and Ethics, Medicine and Surgery.

S. G. McCaughey, passed in Physiology, Histology and Bacteriology.

E. E. McDonald, passed in Anatomy.

W. H. McDonald, passed in Operative Dentistry and Pros-

thetic Dentistry, (papers), Orthodontia, Anaesthetics and Materia Medica.

H. B. McKay, passed in Anaesthetics and Materia Medica, Physiology, Histology and Bacteriology, Physics, Chemistry and Metallurgy.

R. E. Robertson, passed in Pathology and Therapeutics, Anaesthetics and Materia Medica, Physics, Chemistry and Metallurgy.

W. R. Rogers, passed in Operative Dentistry and Prosthetic Dentistry, (Clinical).

H. A. Simmins, passed in Anatomy, Physiology, Histology, and Bacteriology, Physics, Chemistry and Metallurgy.

A. B. Wagg, passed in Anaesthetics and Materia Medica, Physiology, Histology and Bacteriology.

Chas. Wiecher, passed in Operative Dentistry, Prosthetic Dentistry (Clinical and Paper), Orthodontia, Medicine and Surgery, Jurisprudence and Ethics.

W. E. Wray, passed in Operative Dentistry, Prosthetic Dentistry, (Clinical).

C. E. Wright, passed in Pathology and Therapeutics, Physiology, Histology and Bacteriology, Physics, Chemistry and Metallurgy.

E. L. Young, passed in Operative Dentistry, Prosthetic Dentistry, (Clinical).

R. J. Vance, passed in Operative Dentistry, (papers), Orthodontia, Pathology and Therapeutics, Anaesthetics and Materia Medica.

S. Lederman, passed in Operative Dentistry, Prosthetic Dentistry, (Clinical and Papers), Orthodontia, Pathology and Therapeutics, Medicine and Surgery, Jurisprudence and Ethics.

CLAUDIUS ASH & SONS IN NEW PREMISES.

Claudius Ash & Sons have found it necessary, because of increased business, to leave the corner of College and Yonge Sts., Toronto, and occupy Nos. 11 and 13 Grenville St. The location is ideal, it is within a hundred yards of the corner of Yonge and College Sts., just off Yonge and on the corner of a narrow street, leading from College St. The building has been re-modelled to suit all the needs of a wholesale and retail dental supply business. The ground floor, which is about forty by forty-eight feet, gives room for stock rooms and shipping rooms.

The main depot is on the second floor, which is only a few feet above the street level. The tooth counter is well lighted from the north, the offices are along the south side, both the west and east walls give abundant space for show cases. The centre of the room is for showing furniture.

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HAVE YOU MET THEM?

Sometimes the very manner in which a patient gets into a dental chair, will indicate to the dentist many of the characteristics of the patient, and some of the difficulties or satisfactions he may have in store for him.

THE THOUGHTFUL PATIENT.

A busy man or woman, who is accustomed to affairs and the value of time, walks directly to the chair, is seated without any preliminaries, fits himself to the chair, as it is adjusted; tells the dentist in a few words why he has consulted him; and if a new patient, who sent him. When the mouth is being examined he places his head in such a position as to make examination the easiest possible. He may give warning of sensitive locations. The mucous membrane is usually fairly normal, and the saliva not abundant and ropy. If operations are undertaken, he is always anxious that the dentist has the best possible opportunity to see

and reach awkward positions. Such patients are a joy to the dentists' heart.

THE THOUGHTLESS PATIENT.

There is the large, awkward patient, who comes shambling into the operating room, that is not a bad sort. Before he is finally located in the chair, he may have hit his head against the electric lamp or the suspended engine, or knocked some instruments off the table or perhaps, tripped over the electric cords on the floor, or the water pipes and made a general spill. He drops into the chair as if he were not sure of its location. Before the chair is adjusted he may open his mouth and indicate the reason for his visit. As soon as the chair is adjusted, he settles himself into it as comfortably as he can and allows you to examine his case. He has now done his part, it is up to the dentist to do the rest. If his discomfort is relieved he is satisfied. If he is not hurt very much he will sag in the chair a little, and perhaps go to sleep. He is not likely to tell you anything about himself, or what his views are on dentistry, or any other subject, he may keep his appointments or may not, just according to his other pressing engagements. His mouth is usually in fair condition, though he may have several cavities of slow decay. Generally a fair patient.

THE SELFISH PATIENT.

There is a patient of the slow variety, who in some respects is satisfactory, and in others is most exasperating. He usually arrives on time, seats himself in the chair without much difficulty, but at once slides down until there is no room for his feet and legs between his body and the window. If the window be open and the chair high enough, he will put his feet out of the window and enjoy it. He sits on the middle of his back, with the head-rest pressing his head forward, until his chin rests upon his breast. The dentist may tip the chair back, and change the head-rest, slip the chair-back down and inwardly cuss, all for no purpose; such a patient is oblivious to one's discomfiture. One may ask him to sit up in the chair, and adjust it to his new position, but in a few minutes, down goes his chin and all the squirming one may do never awakens a thought in him that he is making the operation difficult. He usually does not talk much, so as to open the way for advice. The mouth and teeth are usually unkept. The mucous membrane is flabby, easily irritated, the saliva is abundant andropy; dental caries is rapid, mastication is poor.

The whole make up is one of want of tone. Such persons may be brilliant students, but lack the stamina for a long career. The patient that slides down in the chair, makes the dentist a poor companion, and a grouchy father.

THE NERVOUS PATIENT.

The youth, either boy or girl, who has had a few cavities in his teeth filled with cement and one first molar extracted, and heard all the stories of misfortunes of the teeth, from all the near relatives and neighbors, will usually break the dentists' heart and temper. They are usually in a highly nervous state. They get into the chair, giving evidence of the struggle going on within them. They may talk little or much, according to what form of nervousness attacks them. What they say at first is not to be relied upon. The examination of the mouth is unsatisfactory. The chair may be adjusted ever so carefully, but they insist on sitting bolt upright. Tip the chair back, and they have a spasm; ask them to open the mouth and they show the front teeth, and before they can be seen, the head has been gradually turned to the left. If the dentist goes to the opposite side of the chair, they gradually move over to the other side. If decay is being removed from a cavity, the head gradually moves away. They cannot be induced to rest the head firmly on the head-rest. They may gradually slide down in the chair if lower teeth are being operated upon; they seem to crawl over the back of the chair if upper teeth are being operated upon. These patients have an abundance of ropy saliva. Every tooth seems to be covered with a gummy, tenacious material. The mucous from under the upper lip will stretch into fine threads, like a highly resinous wax or like taffy. The teeth decay rapidly and are exceedingly sensitive. The enamel takes on a chalky appearance at the necks and is very sensitive. Such patients should be met in the morning. They fill the nervous ward of the hospitals and make life either overjoyous or over-miserable for their friends.

There are many other types of patients that might be described. These are sufficient to illustrate the characteristics of the individual, from the way they act in the dental office.

PUBLIC LECTURES ON ORAL HYGIENE.

The Canadian Oral Prophylactic Association has one outfit of lantern slides and diagrams for public lectures on oral hygiene. They have also had subject matter prepared for such lectures which might be of great assistance to members of the profession who are asked to deliver lectures before teachers, womans' institutes, and other gatherings. These may be obtained free of charge from the Honorary Secretary, A. J. Broughton, 305 Markham Street, Toronto, Canada.

LECTURES TO WOMEN'S INSTITUTES.

Dr. D. C. Smith, has been invited to address the Women's Institute of the County of York, in the Auditorium, Stouffville, Ont., September 21st, 1910, and the Women's Institute of South Ontario, in Claremont, Ontario, in November. Hygiene of the mouth is becoming a live subject in Canada. Dentists should accept any opportunity to advance the health of the people.

DENTAL COLLEGES.

Beginning with October, the Canadian Dental Colleges open; Maritime Dental College, Halifax; McGill, Montreal; Laval, Montreal; Royal College of Dental Surgeons of Ontario. The Canadian Dental Colleges' course extends over four years. The Matriculation is the same as that required by the Universities, with which the college is affiliated. In all four schools great improvements in equipment and teaching facilities have been made during the past year. Students who take the full course of any of the schools may go out to practice with the satisfaction that they had at least an excellent opportunity to study dentistry.

EDUCATIONAL COMMITTEE, TORONTO.

The following dentists were suggested by the Toronto Dental Society as a Committee to carry on the work of education in dentistry in Toronto, under the general direction of the Education Committee, of the Ontario Dental Society: Drs. Kennedy, Seecombe, Eaton, Conboy, McLaughlan, Sutherland, McGill, Paul.

A NEW SPHERE OF EDUCATION.

The publishers of the Canadian Therapist and Sanitary Engineer, have asked the Canadian Oral Prophylactic Association to undertake a department of oral hygiene in its columns. After considerable discussion it was decided to appoint an Editorial Committee, which would take the matter in charge. The intention is to have written a suitable article on one of the following subjects for each issue:

- Part I. 1. A discussion of the present condition of the teeth.
 2. Effect on the general health.
 3. What is being done to relieve present conditions.
 4. What methods should be adopted by,
 (a) Dentists.
 (b) Patients.
 (c) Physicians.
 (d) Boards of Health.
 (e) Boards of Education.
 (f) Provincial Authorities.
 (g) Dominion Authorities.
- Part II. 1. Pain of Dental Origin.
 2. Value of temporary teeth.
 3. Pyorrhea.
 4. Alveolar Abscess.
 5. Description of the average unclean mouth.
 6. Mastication.
 7. The infected mouth and infectious diseases.
 8. Facial deformities of dental origin.
 9. Dental treatment of fractures of the jaws.
 10. Descriptions of erroneous diagnosis of diseases of
 the mouth.

The publication will reach School Boards, Teachers, Boards of Health, Sanitary Inspectors, Physicians, and all those interested in the advancement of health.

FOR SALE.

Dental practice for sale in a good progressive town in Saskatchewan, of 1800 inhabitants, only one Dentist; reasons for selling. Apply to Dominion Dental Journal.

LOCATION FOR DENTIST—Best location, North of Bloor street, over drug store, opposite Lowther avenue, ready about October 1st. Apply to G. M. Petrie, 57 Avenue Road, Toronto.

Dominion Dental Journal

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TORONTO, OCTOBER 15, 1910

No. 10

Original Communications

INVESTING AND CASTING GOLD INLAYS.

BY JOS. NOLIN, D.D.S., MONTREAL, QUE.

Read before the Canadian and Ontario Dental Associations, May 30, June 1, 2, 3, 1910, at Toronto

Dr. Green has given us a noble example of what courage and ability, when they combine in the same man, may accomplish.

In accepting to write an essay on a subject which has filled thousands of pages in the dental reviews for the last three or four years; a subject thrashed out and discussed *ad nauseam* by countless *experts* at numberless dental meetings, he has shown considerable courage; while in dealing with it in such fluent and convincing style as to make every thing he describes seem plain and easy to his audience, he has given proof of no mean talent and ability.

The subject, as a whole, is covered in such masterly fashion as to leave very little unsaid.

Exception might, however, be taken to some affirmations which experience and facts seem to disprove.

Such as, for instance, the affirmation that "the waxing of a pin tooth to a pivot placed on a root, as the means of casting a Richmond Crown, is bound to invite trouble." This sounds somewhat heretical to such of us as have made a serious study of the Casting Process as applied to Crown and Bridge-Work.

I will pass around a number of Richmond Crowns, cast in this manner. Some of these have been ground so as to expose the porcelain at the most vulnerable points. All of them were cast by inexperienced students, with the crudest of apparatus (the S. S. White swagger and softened moldine), and were picked up at random, among a lot of castings made in the Technique classes of the Laval Dental School in Montreal.

My personal experience leads me to look upon this application of the Casting Process, both in effectiveness and in time saving results, as one of the greatest boons conferred on a much overworked profession by Dr. Taggart's discovery.

If you examine some of these cast crowns, you must come to the conclusion that porcelain teeth, backed by this process, show

a much healthier condition of the porcelain than is ever obtained through the ordinary process of backing with solder.

Of course, in this, as in all other methods, proper technique conditions must be observed.

The uncertainty of what constitutes these conditions is, very likely, the main cause of the lack of enthusiasm shown by the profession for this sort of work.

It is undeniable that the casting process, as applied to bridge-work, has been somewhat disappointing. The early promises of the manufacturers of casting machines have failed to materialize, inasmuch as the ordinary form of bridge-work is concerned.

Although gold can be cast on one porcelain tooth without fracture, it has been found difficult to cast at a single heating a bridge containing two or more porcelain teeth.

Why such a paradoxal statement should hold true does not seem to have attracted sufficient attention from the profession as a whole.

Does a bridge made of cast metal contract more than a soldered bridge? Who will dare say yes? Who will dare say no?

If yes is the answer, what is the cause of this greater contraction and how can it be remedied?

If the answer is No! then, why should the porcelain teeth be more apt to fracture than in a soldered bridge; in view of the fact that a single tooth can so effectively be backed by this process?

Such is the problem that faces us to-day, the solution to which, if carried to its ultimate limit, would be of incalculable value to the dental profession and the public.

It would so simplify bridge-work that it would allow dentists to make this class of work on a paying-basis, at prices more attainable to people of limited means (which means the vast majority), and thus do away with the ruthless sacrifice of thousands and thousands of sound teeth.

I have devoted a good deal of time and labor to this question, and, although I am not yet in the position to place before you a fully evolved self-acting machine or to describe a complete code of technique of a special system of cast bridge-work, I may state that I have discovered some principles of metal casting heretofore unknown as far as I am aware, and which, when understood and placed under full control will render the making bridge-work by the casting process a comparatively simple operation. These I wish to submit to this meeting with a view of:

1stly, placing myself on record.

2ndly, of opening a new field of investigation which, through the help of research committees may lead I hope in the near future to the final solution of this most interesting problem.

The modifications made to accepted methods of casting bridge-work reside,

1st in the flask.

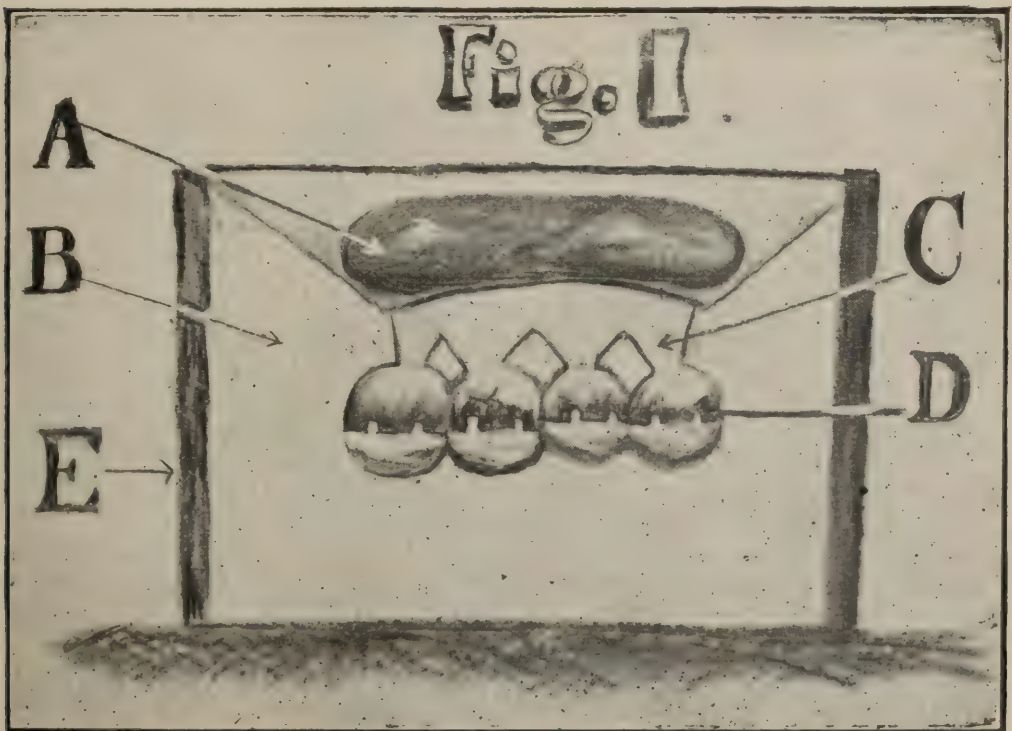
2nd in the sprue former.

3rd in the base plate of the flask.

4th in the method of heating and cooling.

THE FLASK.

The flask should be an oblong cube, and of such dimensions as to allow about the same quantity of investing material around the bridge as is used in investing a bridge for the soldering method, which means a much smaller quantity of investment than is generally used. This is to allow of a better control and a more even distribution of the heat than is possible with the cylindrical flasks. (Fig 1. (c)).



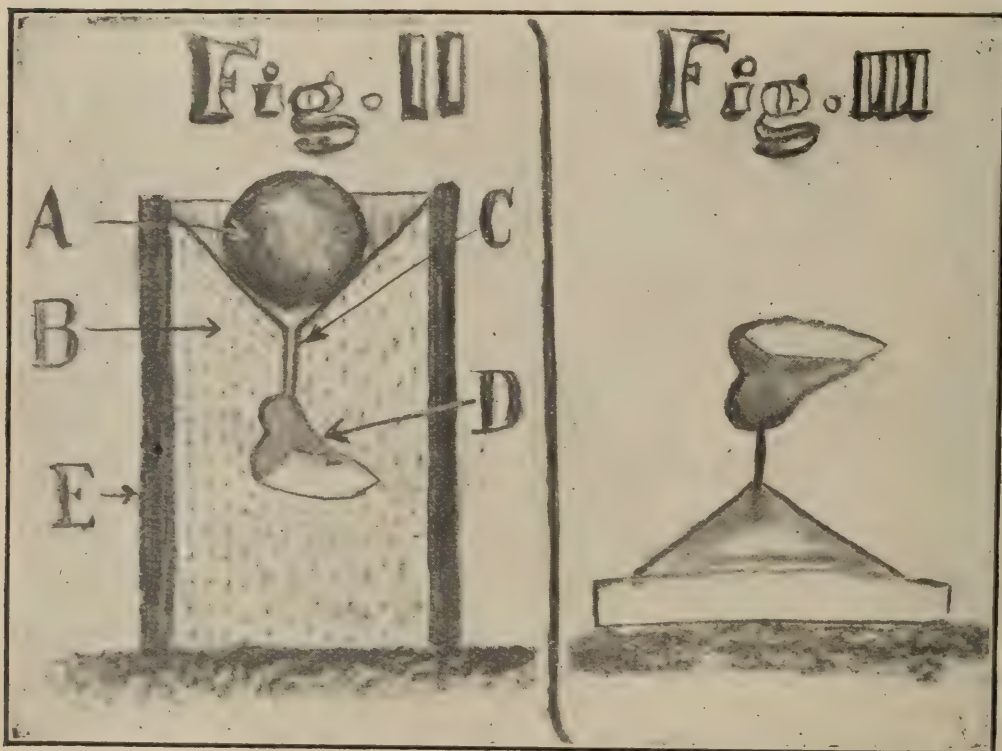
THE SPRUE FORMER.

For bridges of more than two teeth the rod shaped sprue former should be discarded and replaced by a piece of metal plate, from 28 to 40 gauge in thickness, according as to whether the bridge is more or less thick. In width, it should reach to within 3-16 of an inch of each extremity of the wax bridge. Its length will be that of the ordinary sprue. (Fig.). It is inserted in the wax on or near the linguo-occlusal angle of the cusps, and a triangular piece is nipped off at each interdental space. This sprue former will leave, when removed, a slot shaped sprue divided, as it reaches the wax, into as many sprues as there are teeth to cast.

THE FLASK BASE.

The flask base assumes the shape of a shortened and latterly elongated cow bell, (or should I say that of a roof of the Elizabethan period?) (Fig. 4), with the diedral angle at the apex showing a marked concavity. The apex is slit to admit the sprue former.

This base leaves, in the investment, a depression shaped like the inside of a hod or a trough, deeper at each end than at the centre, and, (when the sprue plate is removed), having a slot shaped opening running along the angle at the bottom. This convexity at the bottom angle allows the molten metal to spread along the whole length of the depression and to thus cover the entire slot-shaped opening. If the bottom of the crucible was straight, instead of convex, the molten metal would form into a ball, and allow the air to penetrate into the spue ahead of the metal. (Fig 5).



HEATING.

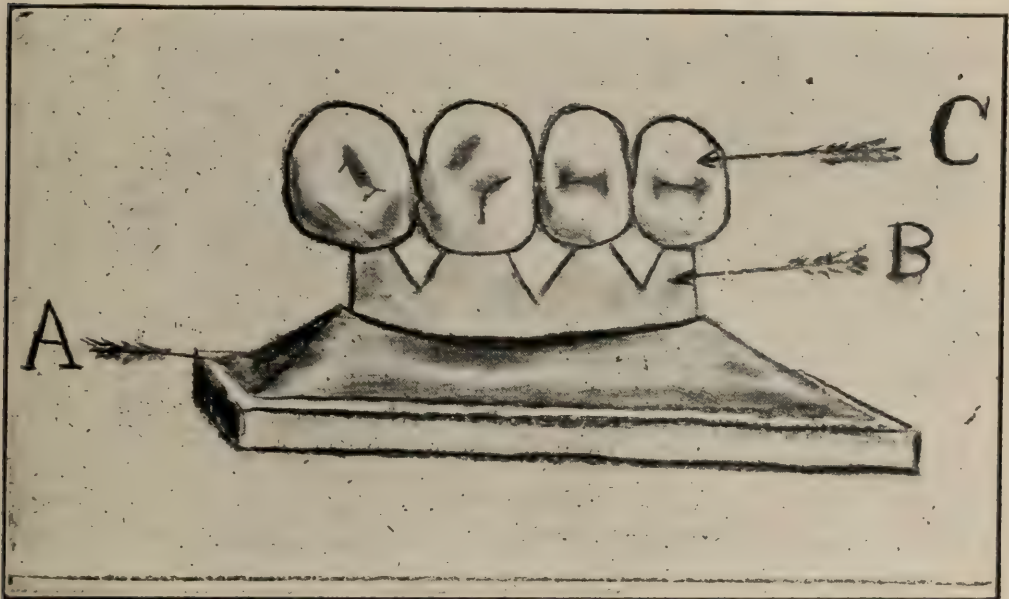
The way a flask is heated for inlay work, then placed on a cold metallic surface, then heated again, at the top only, then suddenly chilled by the contact of cold air or frozen gas, and left to cool off as best it may, would play havoc with the porcelain of any bridge, cast or soldered.

There is not a casting machine on the market to-day fit to cast bridge work with porcelain facings. But because this is so, is no reason why we should jump at the conclusion that such a machine can not be constructed.

To be effective, such a machine would have to fulfill the following requirements:

1st. Be adapted to the use of flasks similar to those I have described.

2nd. Provide a place where the flask can be heated and the pressure applied *in situ*, without change of heat, and where the case can be allowed to cool slowly.



Some of the existing machines might, I believe, be altered to meet these requirements, and some manufacturers would confer a boon on the profession, as well as enhance their profit and loss account, by looking carefully into the matter.

I am fully in accord with the essayist on what he says about inlay and plate work, and believe he is entitled to our hearty congratulations for the able and concise paper he has given us on the casting process.

FREE EXAMINATION OF SCHOOL CHILDREN'S TEETH WHAT ORAL HYGIENE MEANS TO THEM.

BY F. B. HICKS, BROOKLINE, MASS.

Read before the New Brunswick Dental Society, July 12th and 13th, 1910, at Moncton, N.B.

"The importance of oral hygiene in the public schools" was the subject of an instructive and interesting paper read by Dr. F. B. Hicks, of Boston, before the N.B. Dental Society at its recent meeting in Moncton, and as this question is likely to become a live one in the very near future in Moncton, the paper will be read with interest. Dr. Hicks said:

It is only during the last few years that the medical profession began to realize the important part that oral prophylaxis plays in regard to the health of the whole body. It is now conceded that a very large percentage of the ills of mankind can be prevented by proper care of the mouth and teeth from childhood on. What a breeding place for disease germs is a mouth full of carious teeth, especially such diseases as tuberculosis, diphtheria and pneumonia! Then, a mouth with a continuous pus formation, the pus is swallowed, which injures the digestive organs and extends through the whole system.

With poor teeth or the teeth absent, mastication cannot properly take place, and the stomach is forced to do the work intended for the teeth, resulting in a diseased stomach. Leading physiologists now declare it their belief that this causes not only gastric ulcers, but such serious growths as cancers. Professor Osler has said: "If I were asked to say whether more physical deterioration was produced by alcohol or by defective teeth, I should unhesitatingly say defective teeth;" and Sir Frederick Treeves says: "Everybody seems to be on a diet. If people were a little more careful about their teeth, they would not need to be so careful about their diet."

I have been asked to tell you something about the work that the dental profession of Metropolitan Boston is doing in the public schools,

A few years ago the Metropolitan Dental Society appointed a committee to agitate a dental examination in the schools. Dr. F. S. Belyea, whom a great many of you know, was one of that committee, and succeeded in getting a leading physician and board of health official interested, resulting in the town of Brookline deciding to make an experimental examination of the teeth of the children of the Pierce Grammar and Primary School. This examination was called experimental because the school authorities wished to know the exact condition of the pupils in a given school in order to judge whether such examinations ought to be made an established custom.

Dr. Potter, professor of operative dentistry at Harvard, was asked to take charge of the work. On one of his trips to Germany he had studied the good work being done there, which gave him ideas for the work in Brookline.

It was first necessary to arrange a convenient chart, in order to record the results of the examinations. After considering several sorts of charts, one used in the ledgers made by the Ransom & Randolph Co., was selected. In this chart each tooth has a number, and each surface of a tooth a number, and by using a large number to designate a tooth and a small number as an exponent to a surface of a tooth, the position of a cavity could be quickly recorded. Three adjustable head-rests were purchased and attached to ordinary cane-seated chairs, which made very good examination chairs. A number of mouth mirrors, explorers, pliers, a box of mouth napkins and absorbent pellets, and a suitable boiler for a sterilizer completed the outfit. Three men were called in as examiners and plans made to examine three hours at a time, from 9 to 12 a.m. The operating chairs were placed at suitable intervals in a row before a long wooden table. On the table by each operator were placed napkins and clean instruments. On the other side of the table, facing each operator sat a pupil who made the records. There were three operators, three clerks and one pupil who sterilized the instruments. The pupils came into the examination room, each with a record card, the name and grade filled in. This card was handed to a clerk and the patient sat down in the chair for the examiner, who had previously washed his hands, to proceed. When a cavity was discovered it was called off to the recorder and placed by number on the record card. When the examination was completed the examiner carried the used instruments to the sink where they were washed and sterilized by the attendant. The examiner washed his hands and went back to the chair where he found another patient ready. By thus systematizing the work, great economy of the time of the operator was effected.

A mouth was rated in good condition where there were no readily observable defects; and in fair condition where there were several small defects or one or two sizeable defects. Other mouths were rated in poor condition.

As a result of the examination held in this school the following classification was made:

P. C.

Mouths rated in good condition131—18.44

Mouths rated in fair condition217—30.83

Mouths rated in poor condition357—50.73

Pierce School, April, 1906.

Having ascertained these facts the next thing was to undertake a betterment of the condition of the mouths rated as "Fair"

and "Poor." To this end a notice to the parents was devised which read as follows:

Office of School Committee,
Brookline, Mass., 19

Notice to parents:

.....has been examined and found to have teeth which need attention. You are advised to take h—— to your family dentist for further examination and for treatment. If circumstances do not permit consulting a dentist, at his office, the child may be treated at a nominal cost at the Harvard Dental School Infirmary, Longwood Ave., Boston, or at the Tufts College Dental School Infirmary, 1416 Hemington Ave., Boston.

A good deal of thought was given to the exact form of this notice. It did not seem best or necessary to give the parents a record of defects found or to tell them whether the teeth of their children were rated as "Fair" or "Poor." It was borne in mind that many of the children were under the care more or less regularly of a nearby practitioner, and that a notice sent to the parents stating that the child's teeth were in poor condition would be unfair to the practitioner, who would be held responsible for the condition, even though the parents had been negligent in arranging for regular professional care.

The next step was to interest the children in the care and use of their own teeth. To this end the following rules were devised and given to every scholar examined:

DIRECTIONS FOR THE CARE AND USE OF THE TEETH.

1. The teeth should be thoroughly brushed after each meal.
2. A tooth powder used on the brush helps to clean the teeth.
3. Candy and crackers should not be eaten between meals; they cause the teeth to decay.
4. The slow and thorough chewing of hard food helps to preserve the teeth and keep the mouth in a healthy condition.
5. Children's teeth should be examined by a dentist at least twice a year.

The school committee of the town of Brookline was so impressed with the value of the examination of the teeth, that they decided to make it an established policy.

The second school placed under examination was the Lincoln Grammar and Primary School. Many of the pupils in this school come from the poorer sections of the town. As one of the examiners I remember of having examined fully fifty pupils in succession without being able to give one a good mark. The result of this examination was as follows:

	P. C.
Mouths rated "Good"	32—5.5
Mouths rated "Fair"	211—36.4
Mouths rated "Poor"	336—58.1

The condition of the teeth was so bad and showed such a lack of appreciation on the part of the scholars and their parents of the value of the teeth, and such a lack of knowledge of how to preserve them from decay, that Dr. Potter proposed to the School Committee that an illustrated lecture be given to the scholars and their parents upon the value and the care of the teeth. This proposition met with favor and the lecture was given. The speaker undertook to impress the great value of the teeth in the process of digestion and assimilation of food; to describe how decay of the teeth came about through lack of cleanliness. How decay caused loss of function and much incidental pain and inability to work. Methods for preventing decay through the maintenance of cleanliness were clearly shown, and the part played by the dentist in the repair of lost substance stated. The greatest stress was laid upon the value of the teeth, and the possibility of preventing their loss by systematic prophylactic measures.

The problem of repairing the defects in the teeth of school children is one that seems rather discouraging. By educating them in this preventive treatment we surely must see results in the future in the form of a cleaner mouth, and carious teeth very materially lessened.

As to the results from some of the early work I will quote from a letter written by the principal of the Pierce School:

"The examination of the teeth of the children has been of unreckoned value to the school ever since. It gave us absolute data upon which to work, and indicated common sense measures for bettering the condition by care and repair. The latter was, of course, chiefly incumbent upon the parents who cheerfully came to the help of the teachers. A great many children willingly submitted to the ministrations of the family dentists, when family and neighborhood pride was roused. The response from the homes was prompt and cordial. Nothing better could be asked for.

In cases of great poverty we encouraged the older children to go to the dental school infirmaries. Several cases were well taken care of there. The kindly spirit and gentle dealings of the dentists who conducted the tests here at school did much toward cultivating a feeling of confidence on the part of the children, and a willingness to have evils corrected.

But by far the best results have come by the care of the teeth, instituted by the examination. Children have been given practical lessons in the proper care of the teeth all through every grade, lessons in the proper care and cleaning of the teeth form the most important of the health lessons.

This year we have gone one step further. A local druggist has been induced to sell a tooth brush for ten cents. After the lessons on the care of the teeth, the children are invited to bring their tooth brushes to school. All our primary classes are this month having tooth brushing contests, where the teacher

illustrates with her own brush, and the children vie with each other to exhibit proficiency in cleaning their teeth exactly right. I am forced to admit that though every child brings his own brush, several of these give evidence of having been bought on the way to school.

Every day as the teacher passes down the line to look at the condition of the hands and nails, it is not necessary to say, "Show me your teeth," as every smiling face shows a pair of lips widely parted over well scrubbed teeth. i

In the grammar grades the same tooth brush interest has been awakened, a great many children have been led to abandon a brush used in common with another member of the family, and clean teeth are everywhere becoming a matter of course. We are compiling individual "Health Books," and learning health rules, which the children take immense delight in illustrating from magazine pictures.

In the fall of 1907 a council was formed called the Dental Hygiene Council of Boston. It had seven members and was composed of members of each of the dental societies about Boston. Later it was enlarged, taking in the whole State and its membership increased to sixteen, the name being changed to the Dental Hygiene Council of Massachusetts. Its purpose is to educate the public as to the necessity of keeping the teeth and mouth in a healthy condition; to teach the doctrine that dental decay can to a large extent be prevented; to promote dental hygiene in schools; to assist in establishing dental clinics for the poor; to aid in control and prevention of tuberculosis, and other infectious diseases.

This Council has distributed a large amount of literature and maintained a travelling exhibit with lectures throughout the State, part of the time in company with the tuberculosis exhibit. In January of last year it held a dental hygiene conference lasting a week. They were able to get together large audiences for talks on oral hygiene, thereby calling this to the attention of a very large number of people who previously thought very little about the importance of this work.

After this agitation was started the dental schools began to be swamped with children. One district nurse alone applied at one time to one of the dental schools for the care of 2,000 children.

Dr. Carl R. Lindstrom, who formerly lived and practised in Lynn, but for some years has been a resident of Brookline with his office in Boston, may be given the credit of starting the first dental dispensary in Metropolitan Boston. At a great sacrifice of time and money, with the co-operation of a number of Lynn men and several from Boston and vicinity, he has successfully carried on a dental clinic for about two years in connection with a charitable institution in Lynn. In connection with this Lynn Dispensary they have a secretary a young lady graduate of Radcliffe College, and who spent two years in the School of Social Workers in Boston.

She visits the schools to teach Oral Hygiene, and has the right of way at any time to call and give a talk of ten minutes. She also visits the homes to teach the mothers and find what are deserving cases for charitable treatment.

I will quote some from Dr. Lindstrom: "The best proof of the service rendered by a dental dispensary augmented by its intelligent sympathetic visitor is a concrete case of betterment of total, physical and mental condition. One of the first cases brought in by the visitor for treatment at the Lynn Dispensary was a child about eleven years old. She was anaemic, hollow-eyed, gaunt, palpably under-fed and diseased. Examination of the mouth showed that every tooth in her mouth was decayed. Some were so far gone as to be beyond treatment. All needed attention. The next impression of the mouth was one of utter neglect and general decay. Pus exuded from several of the sockets, and the total effect was revolting to the observer.

The task of cleansing, repairing, filling and extraction completed, the child was preached to in all seriousness as to her future duty, and equipped with brush and powder, was sent home but not forgotten. The visitor immediately visited the home and impressed on child and parents the duty of change of habits and constant care. Close watch was kept on the child. Immediately a change for the better in physical appearance was noticeable. It has continued to this day so that the transformation is startling. Freed from pain at night, the child sleeps. She chews her food, because the chewing apparatus is in order. The masticated mass enters the stomach and intestines minus numerous bacilli, which formerly were present. Consequently the child has gained in flesh, in color, in animation, and in zest in life.

Nor is this all. She has become a zealous youthful missionary of the gospel which has saved her. She has won her own family of four persons to the care of their teeth never known before. She has converted her little playmates to better habits in dental hygiene at home, and also to resort to the dispensary for examination of their teeth and such care as is prescribed for them there. This gospel she preaches insistently, when at play or as a regular business or street corner propaganda, and it is an effective sort of preaching, because so wholly unselfish, and because so splendidly supported by the transformation in her own case.

The case is especially interesting because of the extremity of her need, and the ardor of her zeal in spreading the good news of physical redemption; but it is a typical case, not an extreme or singular one at all. Thousands of children in the schools, for lack of similar investigation, are the easier prey to disease, are slow and lethargic in study and "retard" the class. Co-operating in similar service, schools, settlements and dental dispensaries can work out transformations in physical, mental and economic efficiency, which will add vastly to the wealth of the country.

The next clinic was started under the auspices of the Metropolitan Dental Society, chiefly through the efforts of Dr. F. S. Belyea. It is known as the Metropolitan Dental Hospital Association and is held at the Harvard Dental School. We are given the use of the infirmary. Wednesday afternoons and Saturday forenoons. A large number of dentists volunteered their services once a week, two weeks, three weeks or four weeks, as they felt they were able, and we are accomplishing a good work. Patients have to be recommended by some charitable organization or brought in by the school nurses. This clinic is not confined to the school children.

Somerville next dropped into line and has a clinic in one of the school buildings.

Malden and Cambridge hold dental examinations in the schools and Waltham and Watertown, clinics.

Some of the women's organizations in Everett called on Dr. Chase of that city to give some talks, which he has done. Other cities and towns throughout the State are taking it up, and so the good work goes on. The city of Boston proper does not yet have oral hygiene taught in the schools, but the department of gymnasium and baths has done good work in this.

We do not consider it advisable to do the work entirely free, except in rare cases, but make a small charge, even if it only be ten cents. Practically all dentists do a certain amount of charitable work in private practice, and some of us a great deal, but we get no credit for it from the general public which has been inclined to criticize us adversely. By the present movement we hope to overcome this. For discussion see page 490

THE INFLUENCE OF DECIDUOUS TEETH AND ADENOIDS ON MALOCCLUSION.

BY FARRIS S. SAWAYA, D.D.S., ST. JOHN, N.B.

Read before the New Brunswick Dental Society, July 12th and 13th, 1910, at Moncton, N.B.

The fundamental principles of orthodontia are based mainly upon the development of the dental arches to accommodate the permanent teeth in their respective positions, with the object of obtaining the best possible harmony between the teeth and the facial expressions, and to render the best service in the mastication of food and articulation of speech.

In order to systemize the subject on hand, I shall endeavor to explain the development of the dental arches and the key to normal occlusion, then to describe the cause of mal-occlusion resulting from neglect of deciduous teeth, under two headings: First, the early extraction of deciduous teeth; Second, the neglect of deciduous teeth to be attacked by caries, without giving them the immediate and necessary attention. These two causes are

related to one another, as you notice. The early loss or extraction of the temporary teeth is the result of caries attacking such teeth, and not having the cavities filled in time to save them temporarily until they are replaced by the permanent teeth.

It has been proven that a mild irritation to an organ under favorable conditions increases the blood supply of that region, and stimulates the cells to activity and development, which is the result of the formation of new tissues. For instance, in a mild irritation of the pulp of a tooth by a large metallic filling under favorable conditions; secondary, dentine is formed by the activity of cells and building up new dentine by the odontoblasts in order to protect the pulp tissues and guard against thermal changes or pressure, and let me say that healthy tissues must be present in order that mild irritation may terminate favorably, or otherwise. If the tissues are infected the presence of irritation leads to pathologic conditions.

The question might be asked what has this to do with malocclusion. Well, as a matter of fact, it has nothing to do with it, except that it will serve as a good illustration, because the same as the Odontoblasts build up new dentine to protect the pulp, so the Osteoblasts, when subjected to mild irritation, build up new bone tissue to secure a space for the accommodation of new teeth.

HOW THE DENTAL ARCHES ARE DEVELOPED.—The eruption of deciduous teeth begins about the seventh month after the child's birth, and it is complete as a rule between the eighteenth and the twenty-fourth month. During this period the dental arches are growing continually, the same as any other part of the body. After the eruption of the deciduous second molars, which are the last to erupt, the dental arches are then in a passive stage of development until the sixth year, at the time when the permanent first molars force their way, posterior to the last deciduous molars. Between them and the rami of the lower jaw or the tuberosities of the upper jaw, at that period, an active development of the dental arches takes place by the expansion of the lateral halves of both dental arches.

Nature has provided for the development of the dental arches a process which necessitates the preservation of the deciduous teeth, especially the molars, in their respective positions, until such a time when the permanent teeth force them out and occupy their places. I said the molars, especially because they play the most effective part of this whole process. Take for example the lower arch; the six year molars force their way between the last temporary molars and the rami of the lower jaw, both permanent molars acting like wedges, and in order to cut through and occupy their normal positions they either have to push the deciduous molars forward or to displace the rami backward so the irritation, which is caused by the wedging process of the permanent molars in order to gain a position, produces an increase of blood supply to that

region, and stimulates the osteoblasts to activity, which results in the formation of new bone tissues, thus increasing the size of the lateral halves of the lower jaw in order to accommodate the permanent teeth. Between the sixth and twelfth year the eruption of the permanent incisors, cuspids and bicuspid takes place, replacing the deciduous teeth from the central incisors back to the two molars on each side. It would be well to say that the roots of the temporary teeth exert a great influence in guiding the eruption of the permanent teeth in their normal positions. About the twelfth year the eruption of the permanent second molars takes place posterior to the six year molars, between these and the rami of the jaw with the same result of development as that occurred from the eruption of the six year molar. This process of development is true of the upper arch, as well as that of the lower.

THE KEY TO A CORRECT NORMAL OCCLUSION.—Normal occlusion is based upon and maintained by the relative position of the superior and inferior six year molars, which bear a distinctive normal position to each other, thus: The anterior buccal cusp of the upper first molar is received in the anterior buccal groove of the inferior first molar. This is known as the key to a correct occlusion, while the teeth posterior to the six year molar occupy respectively the same position and bear the exact relation to each other as that of the six year molars. The teeth anterior to the permanent first molars interlock with one another in the interspaces until the incisors are reached, of these, the upper overhang the lower, covering about one-third the length of their crowns, and the mesial approximal space of the superior centrals corresponds with that of the inferior centrals. You notice this description of normal occlusion is brief and condensed and it is simply given here just to draw a line between normal and abnormal occlusion.

MAL-OCCLUSION CAUSED BY THE EARLY LOSS OF DECIDUOUS TEETH.—As the lower teeth erupt first and the lower arch in the form over which the upper is molded, I shall only speak of mal-occlusion of the lower teeth, because the lower arch exerts a great influence over the form of the upper, and its teeth in their position; consequently what will be said concerning the lower teeth is true, under the same conditions, of the upper teeth.

I've already stated how the dental arches are developed. I have explained the necessity of retaining the deciduous teeth, especially the molars, until they are replaced by their successors, now I endeavor to explain the evil results of the early loss of such teeth.

The deciduous molars are generally lost at the time when their presence is most essential for the development of the dental arch. They are very often extracted before the eruption of the six year molars, or very shortly after. In case they are lost before the per-

manent first year molars erupt, this molar, I mean the six year molars, have a tendency to make their way through the point of least resistance, and erupt anteriorly to their normal position, occupying a space which should be reserved by the deciduous molars for the bicuspid which will erupt between the ninth and twelfth year, consequently the bicuspid erupt in an abnormal position, either crowded or more frequently they displace the temporary canines and take the place of the permanent cuspids, causing them to occupy a position entirely out of occlusion, a position which might be labial or lingual-occlusion, and not infrequently you find it in torso or infra-occlusion. All these conditions are either simple or complicated, according to the area displaced by the six year molars, which conditions depend upon the time and loss of the temporary molars.

When the temporary molars are lost on one or both sides of the dental arch before the eruption of the permanent first molars, the result is greivous, and mal-occlusion represents a complicated condition, as for instance, the loss of the temporary molars on both sides of the mandible before the eruption of the six year molars, the permanent first molars force their way mesial to their normal position, while the upper permanent first molars erupt just in their normal position, because the deciduous upper teeth are in place yet. Consequently the normal relation between the upper and lower molars is lost because the lower ones are in mesial occlusion and the upper are just normal. This condition gives rise to one of the serious conditions of mal-occlusion which is classified by "Angle" as Class III., its divisions and sub-divisions. This third class is characterized by the mesial occlusion of the lower arch in relation to the upper, and it might be bilateral or unilateral. This is not the only complication that results from the loss of such teeth, but this is one of the many possible terminations of such cases.

Although mal-occlusion is greatly influenced by the general health of the patient and conditions of surrounding tissues, the loss of deciduous teeth is the primary and existing cause of mal-occlusion.

If, however, the deciduous molars are lost in both arches after the eruption of the six year molars, which is often the case, the complications are liable to be slight, and mal-occlusion very often falls under class I, which reads as follows: Arches are in normal mesio-distal relations. In this class, mal-occlusion may range from the slightest overlapping of one tooth to the most complex derangement of all teeth. Almost always these derangements occur in the anterior teeth. (Angle).

When the deciduous molars are lost in both arches the six year molars are in place in a normal occlusion, that is in a mesio-distal relation, and when the permanent second molars erupt they force the six year molars on each side of both arches mesial to their

normal position, yet the relation of the occlusion of both arches is normal, only causing the teeth anterior to the permanent first molars to diverge from their proper positions, causing a crowded arch or derangement of teeth. Some of these teeth may be in labial, others in lingual, or some in mesial or distal and quite often they are in torso, infra or supra-occlusion.

THE NEGLECT OF CARIOUS DECIDIOUS TEETH.—This is really the cause of losing the temporary teeth early in life and causing all these complications and difficulties, and not only this, but the presence of cavities in deciduous teeth is a primary cause of mal-occlusion to a lesser or greater extent, according to the number, size and location of the cavities.

Most of all cavities in the temporary teeth are compound. They are either approximo occlusal or approximo-incisal cavities, a condition which shortens the mesio-distal diameter of the tooth attacked by caries. There are cases where such decayed temporary teeth do not pain, or they may cause a slight inconvenience which is not severe enough to necessitate the removal of the decayed tooth, "because they never think of having such teeth filled." Under such circumstances the deciduous teeth remain in position until their successors replace them. Such molars decayed as above mentioned lose their contour and contact point, thus leaving a space between the teeth where decay is present, varying the size to that portion of the teeth which is attacked by caries. So when the permanent first molars erupt they have a tendency to move the deciduous molars forward, forcing them to take a mesial position to normal according to the space established between the teeth by caries, consequently the six year molars occupy a mesial position to normal, thus preventing the development of the arch and causing the teeth anterior to the permanent molars to erupt, crowded and out of occlusion, owing to the fact that the space caused by caries which should have been reserved for the permanent teeth anterior to the molars is now occupied by the six year molars by moving the deciduous molars forward.

ADENOIDS.—Adenoids or nasal polypi which normally exist in the nasopharynx in children, and it is known as pharyngeal tonsil, very often attain a very large size, which causes the obstruction of the air passages and render breathing through the proper channels more or less difficult; the difficulty being governed by the size of the growth in them.

In such cases the child must breathe through the oral cavity, a practice which necessitates the constant opening of the lips and mouth in order to inhale and exhale the air. A patient suffering from adenoids for any length of time is always recognized by his simple expression, constant opening of the mouth and pointing out of his superior anterior teeth.

Mal-occlusion, which is brought about by adenoids is familiar to all of us. It is characterized by the protrusion of the

superior front teeth, the compression of the lateral halves of the upper arch and the deepening of the palate, a condition which causes what is called a V shaped arch.

Under normal conditions the upper front teeth are held in a normal occlusion labially by the compression of the upper and lower lips, the lower lip covering the incisal third of the upper teeth while the upper lip covers the remaining two-thirds and the alveolar process. Lingually the tongue and the lower front teeth counterbalance the pressure of both lips. The posterior superior teeth are held in a normal occlusion, first by the mutual support of the lower teeth interlocking with one another when the mouth is closed, lingually they are supported by the tongue which fills up the roof of the palate, and buccally by the compression of the buccinators, assisted by the muscles of the face.

When a patient is suffering from adenoids all these principles are more or less affected, thus: The patient must keep his mouth open in order to breathe, so the upper lip is drawn upward and loses its control while the lower lip not only loses control over the incisal third of the front superior teeth, but it tends to push these teeth forward simply by acting as a cushion between the upper and lower teeth in the act of swallowing and moistening the lips. The narrowing of the upper arch is due to the fact, that, in this state, the tongue rests on the floor of the mouth and loses its influence over the palate and the posterior superior teeth, the interlocking of the posterior teeth with one another, and their mutual support are lost, thus giving the buccal muscles an opportunity to compress the lateral halves of the arch by their contraction, which is greater than normal when the mouth is open, so the result is that the roof of the mouth is deepened, the sides of the upper arch are compressed, and this condition helps the protrusion of the upper teeth beyond their normal position.

WHAT IS REQUIRED? First of all the early loss of deciduous teeth should be avoided and the teeth should be maintained in their places until they are needed no more. Second, the deciduous teeth must be attended to and all cavities filled, and the contour of the teeth or the contact point be maintained. Third, Adenoids should be attended to early in life, and they should be removed before they do any damage.

IGNORANCE OF THE PUBLIC.—The ignorance of the public of the evil results which are due to the early extraction of temporary teeth is the main cause for mal-occlusion. The parents of a child think no more of taking care of his deciduous teeth than of giving him a dose of poison, and not only that, but the grave mistake they always make it taking the six year molar for a temporary tooth and having it removed is another great factor for causing mal-occlusion.

If a consulting dentist should tell the parents of a child that the back tooth they wish to have removed is one of his permanent

teeth, and it should be reserved, their answer most likely would be: Do you think so? Why, my goodness, he or she is only eight, nine or ten years old, whatever the age might be, and he can't possibly have his second teeth at that age. They never think of such a thing as to fill the temporary teeth; they say, Oh, well, they are only his first teeth and they have to be taken out very soon and it is an extra expense to fill them. I guess you had better take them out. You explain to them why they should be filled and retained in their places, and urge upon them to save such teeth, and they will say, I guess I'll bring the child to you next week, really now, I haven't got time, and this is the last you see of the patient or his parents.

The public knows less about adenoids and its results than that of the results of extracting the deciduous teeth, and they can't see any connection between it and mal-occlusion. All they know is this: The child's teeth decay so quickly because he eats too much candy, they are irregular because he eats too much candy, etc.

CONCLUSIONS.—What is needed more than anything else is the education of the public to know the meaning of deciduous teeth and why they erupt ahead of the permanent. They ought to know approximately at what age each tooth erupts. They ought to know the harm which is derived from their early loss. Also they ought to know the evil results occurring from adenoids and to urge upon them to have such growths attended to immediately.

It is of the utmost importance to have the educational institutions at large to educate and advise the children or their parents to the necessity of having the teeth attended to early in life and to seek the advice of the family dentist as to what is best to be done for the child's teeth, and I think a circular explaining how and why we should take care of the teeth, especially those of the children, should be made and distributed by the authorities to every home, because it is just as important to issue instructive circulars pertaining to the care of teeth and the mouth as it is to issue circulars explaining how to guard against tuberculosis, because the oral cavity is one of the most dangerous avenues of infection.

THE L. P. HASKELL METHOD OF MAKING ALUMINUM DENTURES.

BY J. J. DALY, SUSSEX, N.B.

Read before the New Brunswick Dental Society, July 12th and 13th, 1910, at Moncton, N.B.

Gentlemen:—Complying with the request of the Committee to read a paper at this meeting, I will in a brief way endeavor to describe Dr. L. P. Haskell's method of making aluminum plates,

following as closely as possible the instructions given me by the Doctor himself.

Take impression in plaster and run model. When set, shape and trim so it will drop from the mould easily by flaring at the sides and front. If there is an undercut, raise model higher in the front than at the back.

Use thin shellac for coating model so as to leave no film on the surface. The moulding ring is made of heavy sheet iron, 5 inches in diameter, and $2\frac{1}{2}$ inches deep. Oiled sand is used for making the mould. After model has been trimmed to suit, and the margin lines marked, place it inside the moulding ring right side up, and with a small potato masher pack in the oiled sand, using the small end for packing around the sides of model, always packing hard.

Babbitt metal is used for the die, it having all the fine qualities a good dental die should possess, non-shrinking, hard so as to give good sharp lines, and tough so as not to break while swaging, having a smooth surface and melting at a low temperature.

The formula of the Babbitt metal as used by Dr. Haskell is as follows, melted in the order named, care being taken not to overheat.

Copper	1 part
Antimony	2 parts
Tin	8 parts

After the mould has been made, the die run, and set hard so that no impression can be made on the surface, lift it out of the mould and plunge in water, wash and wipe dry. Now coat the die with moist whitening, using the fingers to spread it over the surface, and let stand until thoroughly dry. Then place die back in the ring right side up and with a spatula raise sand to about where the margins of plate would be.

The formula of the *counter die* metal is:—

Tin	1 part
Lead	5 parts

Care should be taken not to pour this metal while it is hot, but stir with a spatula until it begins to chrysalize, then pour quickly. Cool in water, and separate the die by striking from the heel, wash and thoroughly dry.

Use 20 gauge soft aluminum, as it does not require annealing. Should the aluminum be hard, it can be annealed by holding with pliers over a flame until a piece of pine will char on it.

Should there be an undercut on the counter die, it will perhaps tear the plate, it being so soft. This can be prevented by scraping freely that portion of the counter die. Do not use a piece of plate much larger than needed as it is more difficult to handle.

Begin swaging by tapping around the sides a little to hold in place. Start from the left side and work across the centre to

right, then drive up firmly in centre, then around the margins, being careful to avoid crimping. When in good shape, swage with a few blows, separate, and tap around the margin with horn mallet. Then swage hard for the final. Trim, holding the plate right side up, beginning at the left and trim around to the right, always higher over the cuspids, finish and shape with rubber file. Try plate in the mouth to see if the fit is all right and the margins not too high, and with a loop plate punch, make eight loops along the margin and eight on the ridge to attach the rubber. Then place wax on the plate and get the bite, after which mount on articulator and proceed the same as for a rubber plate. Vulcanize, finish and polish in the usual way

PORCELAIN INLAYS VS. SILICATE CEMENTS.

BY C. A. MURRAY, MONCTON, N.B.

Read before the New Brunswick Dental Society July 12th and 13th, 1910, at Moncton, N.B.

Mr. President and Gentlemen:—It is with a great deal of pleasure that I appear before such a large and representative body of our profession of this Province in this, my adopted City. Twenty-five years ago, this month, I came here and during that time have seen many changes, both in the profession and in the community at large, and to-day as the senior dentist of this town, I extend to you on behalf of our profession a most cordial welcome.

The subject which I desire to call your attention to for a short time is one of great interest and one in which we all have had our successes and our failures, but it is through these successes and these failures that we arrive at a degree of proficiency. The more time and thought we give to this or any other subject in our profession, the greater degree of success will be the result.

There are probably no subjects in dentistry so much to the front, at the present time, as silicate cements, and porcelain inlays. In regard to the subject of silicate cements, there have been a great many different varieties on the market. It is hardly right to condemn all these products, because most of them in my hands have been useless, but the fault may be in my inability to manipulate them and not in the materials. It was really through the failure of these materials in my practice, that I got my most valuable information. Experience has taught me not to accept the claims of all the manufacturers. After a great many disastrous experiments I eliminated the whole business to one sole survivor which gave me most uniform and satisfactory results.

A great deal can be said in regards to discoloration. I think as a general rule this is more the fault of the operator than of the cement. Different operators have different ways of manipula-

tion, hence they must have different results. What we want is to adopt a method whereby each and every one of us can get the very best results the material is capable of producing. The chemical composition of these cements is not all the same. From analysis it may be safely concluded that silicates of calcium and aluminum from the basis of the powder, with other modifying substances. The liquid is merely modified phosphoric acid. This chemical compound is a very intricate question, and only a chemist is capable of dealing with this phase of the question and even the most expert chemists know very little about the subject. The Dentist side of the question is to preserve these chemical bodies by keeping them well corked, so as to take up no moisture from the air, or obtain any impurities while on the slab during the process of manipulation. Both the powder and the liquid are hygroscopic and when left exposed will absorb water from the atmosphere, thus altering its working properties as the cement grows older. An important point in these fillings is their translucency, which depends upon the liberation of silicic acid during the chemical reaction. If the liquid is charged too heavily with the powder a certain amount of the translucency is taken away, therefore we should exercise great care so as to get the proper amount of each before mixing. My best results have been arrived at by sticking to the theory and trying to get as perfect neutralization as possible between powder and liquid. The proportion being about three of powder to one of liquid. In mixing, it is quite essential that both powder and liquid be on the slab at the same time. Then draw a certain amount of the powder into all the liquid and so on until all the powder is absorbed and the desired constituency is reached, at the same time bringing every grain of powder into contact with the liquid, so that the chemical reaction may be complete. The mass should be quite stiff, perfectly plastic and sticky. Everything now depends upon the quickness of the operator in order that crystallization may not be interfered with by unnecessary manipulation.

My technique is as follows:—Have necessary separation, apply rubber dam and prepare the cavity. Perhaps a few words here would not be amiss about the preparation of the cavity. The cavity for a silicate filling should have an undercut. The edges of the cavity should not be bevelled but sharp as for porcelain inlay. Silicate cements appear to be adhesive, but they are not, as experience has proved. It adheres to a slab or spatula only so long as there is any free acid under it, which acts by capillary attraction, to hold it there until crystallization is complete. In some cases, where it is not convenient or possible to secure undercuts, I have used thin oxyphosphate cement placed on the floor and walls of cavity and pressed the silicate cement into it while the former is still soft and adhesive. By this means I have achieved good results. The mix is thoroughly packed into the cavity with the

different angled bone instruments. Then take a perfectly clean celluloid strip, slip between the teeth and hold lingually by the fingers of the left hand. Tension is then put upon the strip so that it is drawn directly against the approximal and labial surfaces of the tooth and in such a way any excess of material is squeezed out on lingual side and by using a burnisher, the margins can be made almost perfect, so that very little use of discs or strips is necessary. You may apply hot air to hasten crystallization and when the strip is removed you will have a beautifully translucent surface.

The best slab to use is one of heavy glass. The spatula should be non-metallic, as the powder is of a gritty formation and in mixing there is a certain amount ground off, thus not only affecting the color, but altering the chemical composition. I think an agate spatula gives the best results. One thing must be strictly observed and that is, everything must be kept perfectly clean, slab and instruments free from any previous mix. The liquid should maintain its original form and should always be shaken before using. As some of the ingredients will settle to the bottom and fluid taken from the top of the bottle will not contain all the elements. In buying you should see that it is perfectly clear. Experience has taught me silicate fillings cannot be relied upon to withstand the stress when exposed to incisal corners or in contour restorations of bicuspid. These fillings upon occlusal surfaces chip away at the margins under the impact of mastication, hence I should say they are not indicated for this class of fillings. They are indicated on the approximate and labial sides of the anterior teeth.

Our ideal in filling materials should be to approach nature as near as possible. To my mind there is no filling material that can approximate the appearance of the natural teeth as well as the porcelain inlay, that is, when it is placed in the hands of a skilful operator, but placed in the hands of an unskilful man, there is no work that looks so hideous as a poor colored and ill-fitting porcelain inlay, and were it not for these failings we could conceive of it becoming almost a universal filling material. Every practitioner is aware that porcelain has been a prominent topic in dentistry for several years, and you probably know that in the past year or two there has been a gradual falling off in its use. This condition does not necessarily mean that the value of porcelain has lessened or that its worth as a filling, (if applied in competent hands) has depreciated, but it can be explained by the fact of its having reached a certain point and the experimenters are giving their attention to something new which is coming up in dentistry every day, and the more conservative practitioners are learning the limitations of porcelain, but the main reason in my opinion is, the introduction of silicate cements, is an easy way for the majority to get out of the difficulty. Porcelain inlays have demonstrated their value as esthetic fillings, but their man-

ipulation is certainly very difficult and results are very uncertain. Silicate cement is an article which some claim equals that of porcelain. In its manipulation there is no particular ability required and no expensive outfit is necessary.

Every dentist in the land has had a trial with silicate cements and we are still experimenting, and we hope some day to have it so perfected that it will be satisfactory in every respect. We all understand the value of this filling material, if it can be made permanent, but up to the present time no person can give the assurance that it is permanent in every respect.

Where a porcelain inlay is indicated depends largely upon the operator. In the hands of an expert it has a very wide range. With beginners, they should confine themselves to the anterior teeth. For the average operator they are indicated in nearly all the labial and approximal cavities of the central laterals and cuspids, in the upper and lower jaw and in the restoration of corners of the front teeth. In selecting a cavity for porcelain inlay work, the very best judgment, wisdom and common sense should be used. Some operators take chances, hoping everything will come out all right. This I consider very poor dentistry and will land you some day in a very awkward position. All cavities should afford the possibility of getting proper space and admit the proper separation.

Porcelain inlays like all other inlays demand that the cavity be so formed that the matrix can be taken from the tooth without distorting it in any way. The form of some incisors is such that it is often difficult to give cavities this shape and at the same time provide for adequate retention. The difficulty is greater with porcelain than with gold. A gold inlay may very often have a thin or slender part, and still be sufficiently strong, while the same feature in a porcelain inlay would be a very weak part and render the inlay worthless. In gold inlays when the cavity is properly formed it is only necessary to push in a piece of soft wax and fashion it perfectly to the form of the tooth and then remove it carefully, but with porcelain, it is necessary to take a piece of platinum foil 1-1000 of an inch in thickness and burnish it over the entire cavity surface, at the same time seeing there is no tears or folds on the cavity margins and that it is perfectly adapted to all parts of the cavity. This is a very tedious, difficult and delicate part of the operation and the difficulty increases with the smallness of the cavity and its inaccessibility. This is where the operator should use good common sense and judgment to determine where they should be used and where not.

Other features of this paper might be brought out which would prove interesting and instructive to us all, such as preparing the cavity; selecting shade; making matrix; baking, etching and cementing, but time will not permit. Consequently I will be compelled to defer that part to some future time.

In conclusion, what brighter prospects could a modern dentist have than to know he has been the means of advancing dentistry and placing our profession on a superior plane than it is credited with, and has been the means of developing an artistic effect and elevating the general standard of all operations and present to the world a solid front which will add glory to the advancement of our profession. For discussion see page 493.

DENTISTRY AMONG THE PROFESSIONS.

BY F. A. McAVENNEY, ST. JOHN, N.B.

Read before the New Brunswick Dental Society, July 12th and 13th, 1910, at Moncton, N.B.

Dr. McAvenney made out a strong case. Assuming in the first place that Dentistry is a distinct profession, he briefly traced its history. Coming to the time when the first college was established, he says: "The men who started the first Dental College made no mistake."

He deprecated the idea of attempting to make a successful dentist by first making him graduate from a medical school, and then giving him the course in a dental school.

He referred to the researches and discoveries of Miller, the dentist, teaching the medical fraternity truths they would have been otherwise ignorant of for probably a generation. He stigmatized the assertion of Talbot, that "a poorly educated practitioner with an M.D. degree, always stands better in a community, both socially and professionally, than the best of educated dentists with the D.D.S. degree only," as an unfair and unjust, and altogether erroneous statement. "Men make their social and professional positions in any community according to their individual merits."

He strongly endorsed Kirk's statements and the position he assumed in discussing the matter in the editorial pages of the Dental Cosmos.

"We must never lose sight of the fact, that the best way to make a dentist is to make a dentist, and with that object in view let us give him all the medical education he can utilize in his work, but never in the name of logic or honest, practical common sense begin by making a physician of him, especially from the dishonest and mistaken motive that it will give him better social and professional standing."

In concluding his address, after deploring the fact that the advertising quack still exists to the degradation and shame of all ethical practitioners, he eulogized those who have always fought for all the higher ideals, and admonished the younger members of the profession to stand for the best only, and to keep contin-

ually in view such things as are "good, and true, and lovely, and of good report," and posterity would bless them.

ORAL PROPHYLAXIS IN GENERAL PRACTICE.

BY J. W. MOORE, D.D.S., ST. STEPHEN, N.B.

Read before the New Brunswick Dental Society, July 12th and 13th, 1910, at Moncton, N.B.

Oral prophylaxis is the name which has been monopolized by Drs. Smith of Philadelphia, McCall of Buffalo and a number of others to designate the particular treatment which they give to the teeth and surrounding tissues, in the way of prevention of caries and other pathological conditions so common in the oral cavity.

To the general practitioner this work may seem to be a little out of his daily routine and to demand the attention of a specialist, but when we consider that the profession of dentistry is a science and an art, having for its object the prevention and cure of all diseases of the oral cavity, then we see as general practitioners that Oral Prophylaxis in its widest sense is the foundation on which we build.

We diagnose the case, remove the cause, and by various modes of treatment assist nature to a normal condition.

The speciality of oral prophylaxis, as set forth and minutely described by Dr. D. D. Smith and his disciple Dr. McCall, is not as broad as the term implies. It diagnoses the case, removes the result and gives treatment to bring about natural conditions—while the cause still exists. While arresting dental caries by filling material suited best for each case, we may practice the higher part of our profession by studying each individual case so that we may intelligently treat, prescribe for and direct our patient to carry out a daily routine which in time will eliminate (if not altogether) to a great extent the active cause of the diseased conditions.

The work of the dentist is confined to the Oral Cavity. The physician claims all right to systemic treatment, so until medicine recognizes in our profession the right to prescribe certain drugs to correct conditions of the teeth and surrounding tissues we must be content to remove the result and use such preparations locally as will for the time change the conditions from unfavorable to favorable, and ask our patient to see their family physician for treatment to correct the systemic conditions.

The attention of the physician in general practice is much the same as we give:—Restoration to a working condition. The causes of the derangement are very rarely considered and remain

to produce the same destruction when the conditions are again favorable.

We examine the mouth of a patient finding a few fillings, no new cavities and the teeth fairly clean in appearance and say "Your teeth are in good condition" and pass on to the next. Here we find a number of cavities, there seems to be something to do and we settle down to work. In this case we repair the broken down organs, we remove the result, while in the other case we have let go the opportunity by Oral Prophylaxis of keeping good teeth good.

It is certainly a high calling to remove diseased parts and by various operations to restore to usefulness the organs of mastication, etc., which the Creator has given to man, yet to find and remove the cause of destruction of tissues and treat to favorable conditions so that these organs remain as intended—a "thing of beauty and joy forever"—is deserving of a place next to the Creator himself.

Although all of our work as general practitioners should be based on this idea of Prophylaxis, yet because of being limited to local treatment we should not lose sight of it altogether, but in every way that presents, do what we can in our limited time at each operation to carry out the principle.

You all know Dr. Smith's method as a specialist in this line of work as described by himself and Dr. McCall in the Journals. We may not be able to give the time that he does, but by giving even a few minutes to each patient, removing some of the conditions that would make trouble in the near future, and explaining the necessity of such treatment by the dentist and daily care themselves we may so educate our patients that the benefit will be mutual, to them in the resulting comfort and good teeth kept good, and to us in being able to see our mastery over existing conditions and to have our patient willing to make appointments for examination and treatment along this line and to pay a fee for the same.

As each case is a law unto itself, I will not attempt to outline any method of treatment, but make a few suggestions to the general practitioner.

To show the patient that conditions exist which are not apparent to him, hold a hand glass, while with the mouth mirror you direct his attention to deposits of tartar, inflamed condition of the gums, etc., then by taking a pledget of cotton saturated with tinct. iodine and going over the surfaces of the teeth you show the patient the presence of gelatinous plaques, the home of acid producing micro-organisms, which are responsible for much of the destruction of tooth substance. This can be done in a few minutes and makes a great impression on the mind of the patient.

It is then an easy matter to make an appointment for such a treatment having impressed the patient with the idea "that an

ounce of prevention is worth a pound of cure," that the time of filling one cavity spent in removing these destructive conditions and preventing in the near future the existence of many cavities, is really the best spent time for him in the dental chair and is deserving of a better fee to the dentist than the brushing up commonly called cleaning.

In removing these unfavorable conditions, each operator will select such scalers and polishers as will best do the work in his hands.

It is claimed that no amount of antiseptic treatment in the mouth will lessen the progress of caries, as the acid producing micro-organisms are too well protected beneath the plaque to be influenced by drugs, the strength they may be used in the mouth. Yet after the removal of these plaques, if we find by tests acid conditions still existing from other causes, we may advise some alkaline, antiseptic, as a local treatment to counteract this destructive condition, instruction to the patient as to the proper attention on his part to the mouth and teeth, if carried out carefully will do much to improve the condition.

We often find in the molars and, especially in the third, whole surfaces so much disintegrated that it seems impossible to restore them by filling, there being so little substance left to hold a filling, and that in many cases is easily scraped away. Crowning with the gold shell crown seems the only refuge we have. In many cases they are consigned to the forceps.

If we watch closely these cases in the beginning of this disintegration and by scraping, stoning and polishing off these surfaces and touching them with a saturated solution of nitrate of silver at intervals of two or three months we will find (although the action of the nitrate will blacken the surfaces touched) that we have in most cases in a year or more a good servicable tooth slightly darkened, but free from caries. The same careful attention bestowed on such teeth by the dentist and eternal vigilance on the part of the patient will make such teeth to do their full duty in the process of mastication. Thus a little attention in Oral Prophylaxis has taken us from that position of utter helplessness and discouragement to a higher pedestal where we stand master of the situation, and instead of that feeling of helplessness which man experiences as he watches his comrade drown for the want of assistance which he thinks that he cannot give, we have "that stern joy which warriors feel in foemen worthy of their steel."

In regard to the dissolving influence which we find at the gum margin in the anterior teeth, and to some extent in the bicuspid and molars, which in most cases is accompanied by extreme sensitiveness, whatever its cause may be, it responds to tests for acids and it can be locally counteracted by the use of alkaline mouth washes. Phillips' Milk of Magnesia has had a very happy effect in retarding this disintegration and reducing the

sensitiveness, making it possible to perform operations without much pain.

A little missionary work of this kind and a talk on these lines by each of us to our patients as we perform the various operations called for, will change our profession to the higher level, and in the near future many of our patients will consult us (while still free from trouble) for examination and tests for conditions favorable and unfavorable in the oral cavity for the teeth and the surrounding tissues, and will expect such attention as is necessary to remove the unfavorable conditions and also prescriptions for local and systemic treatment to continue the favorable conditions.

The ideal condition of all organs of the body is to be found in perfect health. Thus I say again—find the causes; remove them and assist nature to work out her own salvation.

JUST A FEW CASES FROM PRACTICE.

I have two cases of the nitrate treatment that seem a triumph over an early grave:

A right third molar decayed much at the 24th year—extremely sensitive; was advised to have it extracted, “it was too soft to be filled,” not caring for that kind of pleasure—and as it had not actually ached I induced the operator to patch it up as best he could with amalgam. Giving away in about a year it was capped with a gold shell crown, “nothing to hold fillings.” In time the cap came off and being then a dental student, I began the nitrate treatment to relieve the sensitiveness, by scraping and polishing away the blackened surfaces and treating again and again at intervals of one month, so that at the end of one year I had a more comfortable tooth of it than for a number of years. It had a crown cavity, antero prox., and a buccal cavity, all of which I filled with amalgam. With a little repair occasionally it has been one of my best masticators for the past eighteen years.

I might remark that at the age of eight and ten, I lost my first molars from caries. The third molars now occupy about the position of the second in the full mouth.

The second case:—A second inferior molar on the left—advised to have it extracted twenty-nine years ago, because it was sensitive to fill. I objected, and by filling and repeated patching it was retained for seven years—then the advice was to extract, had it patched up again with amalgam and in two years more—twenty years ago—I began while at college to treat with nitrate of silver—with a gradual improvement. To-day with a gold inlay including the post-prox. and grinding surfaces, it stands as chief grinder in my fletcherizing apparatus on the left side. The pulps in the teeth in each case are in their natural condition.

Regarding the extreme sensitiveness and apparent softness of the teeth I will only weary you with one case of many. A family—a mother and five children. The mother had lost a num-

ber of teeth, the children had not lost any of the permanent teeth. Many were patched up temporarily and the advice given was to keep them along as best they could in this way till the jaws had attained their full development and then extract and substitute artificial appliances.

The mother being of an enquiring mind, very eagerly accepted my proposition in her case, that was to examine each month as to its chemical reaction, etc. In her own case by testing near the gum margin with litmus. I found a decided acid reaction. She immediately asked if it would not be possible for her to take some systemic course of treatment to correct the condition (so you see she was away ahead of most of us when we consider that was eighteen years ago). I informed her that it might be even so, but not being allowed to prescribe for systemic treatment we would be satisfied to follow up the local. I explained to her the action of Phillips' Milk of Magnesia on the surfaces of the teeth and tissues of the mouth—how it formed an alkaline film over the teeth counteracting the acid present in the mouth, and for some time it would prevent further dissolving influence from new supplies of acid, whatever source they might come from. This was to be used at first three or four times daily and especially at night just before retiring, after having brushed the teeth thoroughly with a brush with some antiseptic dentifrice. The mouth not to be rinsed after taking in a few drops of magnesia.

Before beginning the treatment I took each case as described in the paper, removed all deposits of tartar—all microbial plaques as shown by the idoine treatment, and polished all rough surfaces as well as I could, and used nitrate of silver where indicated.

Time went on—the magnesia treatment was religiously followed by the mother and the children, and each in their turn came to get the attention in oral prophylaxis that I could give them, so that as the sensitiveness lessened I was able with little trouble to the patients to insert temporary fillings of gutta-percha and cement and later amalgam, gold, and porcelain inlays.

In this case I would remark that the two youngest children had on first coming, their deciduous teeth, which were treated in the same manner. None of these had to be extracted before their natural time, and although there are many fillings which are necessary to repair the destruction which had been allowed to continue, no permanent teeth in that family have been extracted since that time and not one night's sleep has been lost from pain.

A case of irregularity which has been corrected in one of the older children, was the result of early extraction of the deciduous teeth on account of neglected decay, and as the operator said, "to make room for the second set."

For discussion see page 494.

SOME USES AND ABUSES OF CLAMPS AND SEPARATORS.

BY J. M. MAGEE, D.D.S., ST. JOHN, N.B.

Read before the New Brunswick Dental Society, July 12th and 13th, 1910, at Moncton, N.B.

I shall not attempt an exhaustive treatise on the uses of Clamps and Separators, but confine my remarks to a few only of the many cases where their use is indicated and point a few warnings for such conditions as contra-indicate their use.

To begin with clamps. It will be best to first point out warnings. Many cases of recession of the gum festoon are directly traceable to traumatic injury inflicted by an injudiciously applied clamp. Most clamps have a tendency to work rootwards when placed upon the teeth, and the gum is insidiously stripped from its attachment to the tooth at the alveolar border. If the clamp remains in position any length of time the damage is irreparable, for the tissues will never reunite if the tooth becomes thoroughly dry above the rubber dam (which it is assumed the clamp was used to hold in place). Again there is the clamping of a portion of the gum along with the tooth which, while not so serious a matter as that already mentioned, is always painful, and can be provided against by having a supply of suitable clamps adapted for any emergency. To obviate the positive slipping rootward of the clamp on bell shaped crowns, a single thickness of base plate gutta-percha stuck to the gripping surfaces of the clamp and taking the conformation of the lingual and labial surfaces of the tooth before the dam is applied will serve a satisfactory purpose, it also nearly always serve to hold a clamp in place where it is adjusted on a conical shaped tooth with tendencies to jump off.

Then there is the injury to tooth structure sometimes inflicted. Cavities which have developed on the lingual and labial surfaces are usually difficult to treat, and too much care cannot be exercised in the adjustment of such clamps as are necessary to keep the cavity dry during the filling operation. For labial cavities in the twenty anterior teeth there is no clamp so satisfactory as the Laskey Clamp. This is a clamp little known, but unlike many articles designed for the purpose, it does not depend for its support upon sharp points which bury themselves in the tooth tissue.

There is a class of cavities, fortunately few in number, which nearly always puzzles the operator, especially if caries extends under the free border of the gum. This is the cavity found on the palatine surface of the upper molar: The only clamp which will isolate this cavity without injuring the buccal gum tissue is the Libby Clamp. This clamp has a hinge joint on one side and a long bow to reach over the tooth and engage itself above the cavity.

In short the things to avoid are sharp points and clamps which grip too tightly. If you must use a clamp with sharp grips—protect them with gutta-percha. Also have a variety of sizes.

Separators are likewise well used and misused. The Perry two-bar separator, the most human and efficient device for the rapid separation of teeth that I am familiar with (and I have studied all kinds), may in the hands of an ignorant or careless operator do a good deal of damage, whereas in the hands of a careful and observant operator under the same or similar conditions, no injury need be inflicted. The judicious placing of softened gutta-percha or modelling compound between the bows of the separator and the teeth will prevent slipping and injury to the gum alveolar process, or teeth.

There is a species of separator with two points to slide between the teeth to be separated. These points slip past one another and tapering in thickness gradually jam the teeth apart. An article of this kind can never separate teeth without injury. If the teeth were made of rubber or something that would yield quickly to forcible screw pressure, perhaps no injury would result, but being enamel and dentine there must be some of the tissue bruised and fractured. Avoid the use of all such separators. To sum it up:—Use only such a separator as can be securely held in place, and which when once set will have the jaws which grasp the teeth to be separated in exactly the same position on the teeth at the finish of the operation as they were at the beginning.

Proceedings of Dental Societies

PROCEEDINGS OF THE NEW BRUNSWICK DENTAL SOCIETY CONVENTION.

Held July 12th and 13th, 1910, at Moncton.

The Twenty-First Annual Convention of the New Brunswick Dental Society was held in Moncton, July 12th and 13th, and proved to be one of the most successful conventions in the history of the society. From an educational standpoint it was a grand success, even surpassing the most sanguine expectations of all in this respect. From point of attendance there could be nothing to complain of, while as regards entertainment the consensus of opinion was that this amiable part of the programme was handled in a manner that was deserving of the greatest praise. The Entertainment Committee, with Dr. F. B. Reade as chairman, worked energetically and enthusiastically, and are to be congratulated on the success that crowned their untiring efforts along this line.

The benefit derived from such a convention is an important feature that should be considered by all dentists. Papers were read on a larger scale than at any previous gathering of the members of the New Brunswick Dental Society, and judging from the way in which they were received proved beyond a doubt that in having an increased number a popular move was inaugurated, most of the papers creating considerable discussion.

Throughout the convention a decidedly optimistic spirit seemed to prevail among the dentists, and with such a spirit permeating the meetings, it augurs well for the future success of the Society.

Of those attending the convention, thirty-six registered, as follows:—

A. F. McAvenney, Farris S. Sawaya, Fenwick C. Bonnell, C. F. Gorham, H. C. Wetmore, F. A. Godsoe, W. P. Broderick, J. D. Maher, Jas. M. Magee, W. P. Bonnell, J. H. Barton, John G. Leonard, St. John; C. A. Murray, F. A. Taylor, Harry S. Thomson, Leverett H. Somers, Simeon A. Steeves, O. B. Price, Fred E. Burden, P. J. Gallagher, G. R. Dobson, Fred B. Hicks, Brookline, Mass.; C. W. Partridge, Lawrence, Mass.; E. R. Hart, H. W. Snow, J. W. Sangster, Sackville; H. W. Murray, Shediac; A. B. Teakles, Jasper J. Daly, Sussex; H. M. Goodwin, Port Elgin; F. W. Barbour, Fredericton; G. T. Leighton, Rexton; J. D. McMillan, H. Sproul, Newcastle; G. J. Sproul, Chatham; J. G. McKinnon, Toronto, Ont.

The opening session of the convention was held in the Supreme Court Chambers, City Building, with a good-sized gathering of the dental profession in attendance.

In the absence of the President and Vice-President, Dr. C. A. Murray called the meeting to order, and on motion Dr. F. A. McAvenney, of St. John, was appointed to the chair.

The minutes of the last annual meeting were read and approved.

At this stage of the proceedings the Vice-President, who had been unavoidably detained, put in his appearance, and Dr. Mc-Avenney thereupon gave up the chair.

Dr. C. A. Murray announced that they had arranged for an address of welcome from Mayor Reilly. Drs. C. A. Murray, F. A. Taylor, F. B. Reade, and L. H. Summers were appointed a committee to wait on the Mayor in this connection.

On motion of Dr. C. A. Murray the visitors were given the speaking privileges of the society.

Vice-President E. R. Hart, of Sackville, said the President had failed to send in his address, and they would now proceed with the regular order of business.

At this point the committee, appointed to wait on the Mayor, returned, accompanied by His Worship, Mayor Reilly and Aldermen W. G. Jones, H. C. Charters, J. A. McAnn and J. H. Crandall.

The City Fathers were introduced, after which Mayor Reilly gave a very appropriate address, welcoming the dentists in a hearty way to the city. His address of welcome was as follows:

MAYOR'S ADDRESS OF WELCOME.

Gentlemen:—On behalf of the Corporation, the City of Moncton, the Aldermen and Citizens, I wish to extend to you a cordial and sincere welcome, on this your Annual Session assembled here.

To-day our Municipality is not only honored, but materially indebted, for your Session convened within our jurisdiction.

Your organization, no doubt, is carrying out that quotation "In Union is Strength." The individual by himself can accomplish little, but several grouped together in one organization, in pursuit of the same objects, can effect wonders. Thorough organization, large representations and deep interest in your Sessions will bring about these results.

Your representatives in this city are capable and discreet members, and have always exercised an influence for good, not only in their chosen vocation, but in all local matters.

Your Sessions will, no doubt, be largely occupied in business affecting the interests of your Society throughout New Brunswick, yet we hope you will be able to allow yourselves sufficient time to take an interest in local conditions and permit our citizens to extend to you such facilities as we have for the inspection of our city and its possibilities.

We have within easy distance of our city large natural resources, which may appeal to you, and which you might find profitable to spend some time in inspecting.

In conclusion, I wish to extend to you all material assistance the Corporation, its Aldermen and Citizens can give, and if there

is anything in which we can assist any of your members, I trust you will not hesitate to let us know when it will be our pleasure to serve you in any way within our power.

Most cordially yours,

E. HERBERT REILLY,

Mayor, for and on behalf of the City of
Moncton, its Aldermen and Citizens.

Vice-President Hart replied that they were glad to have the Mayor and Aldermen present, and thanked them very heartily for the address of welcome. He said that as a body the dentists tried to serve the best interests of humanity, although in common with other mortals they sometimes failed in their endeavors. He was sure they had listened with great pleasure to the address, and would be pleased to hear from the Aldermen present.

Ald. Jones, who was the first to speak, said the Mayor had tendered their feelings and he could only reiterate what had already been said. He believed that in such gatherings through the intermingling of kindred spirits the best could be accomplished, and he expressed the wish that the meetings would be pleasant and that their stay at the Hub of the Maritime Provinces would be enjoyed.

Ald. Charters said he did not expect to be called upon to say anything to this intelligent body of men, but he could not now let the opportunity pass without also cordially welcoming them to the city, which was truly the Hub of the Maritime Provinces. He said he was always pleased to have conventions held in Moncton, and declared they would do all in their power to make the stay in Moncton pleasant for the dentists.

Ald. McAnn agreed with the remarks of the other gentlemen, and said that anything that he could do in the line of making it enjoyable for them he would be only too pleased to do it.

Ald. Crandall also gave the visitors a warm welcome and hoped they would enjoy themselves thoroughly while in Moncton.

Dr. W. P. Broderick, of St. John, said he was glad to see this manifestation of good will on the part of the Mayor and Aldermen, and he, therefore, had great pleasure in moving that a vote of thanks be tendered these gentlemen.

This was seconded by Dr. H. B. Nase, of St. John, and carried.

Mayor Reilly replied in appropriate terms, referring to the pleasure he had in giving the address.

The Mayor and Aldermen then retired from the meeting.

Dr. F. B. Reade, of Moncton, called attention to the trip to the oil and gas wells in Albert County, to be taken on the day following. He advised them all to take in the trip if possible and almost all present signified their intention of availing themselves of the grand opportunity afforded.

The Secretary's report was read, and on motion of Dr. Godsoe it was left on the table to be audited.

Dr. F. E. Burden, of Moncton, referred to the disastrous fire that had almost wiped out the town of Campbellton, N.B., on the day previous, and as some of the members of the N.B. Dental Society had in all probability been burned out, he suggested that something in the way of relief be done by the society.

This matter was left over for the present.

The question of appointing an Auditing Committee then came up, and it was moved by Dr. C. A. Murray, seconded by Dr. F. C. Bonnell, of St. John, that the chairman appoint a committee of three. Carried.

Those appointed were Drs. Thomson, Gorham and Daly.

PERMANENT AUDITING COMMITTEE.

Some discussion took place in reference to appointing a permanent Auditing Committee, and finally it was moved by Dr. F. W. Barbour, of Fredericton, seconded by Dr. Broderick, that the next committee be permanent, the members of which shall reside in St. John, and shall have report ready for submission along with the Secretary-Treasurer's report. Carried.

It was decided to appoint the committee during the election of officers.

Dr. Barbour reported verbally with reference to subscriptions to the Maritime Dental College.

LEGISLATION COMMITTEE.

Dr. O. B. Price, of Moncton, stated that two years ago a Legislation Committee had been appointed, and that he was a member of the committee, but to his knowledge it had not met. He asked the Secretary to read the names of the other members on the committee.

According to the Secretary, Drs. Broderick, Smith and Magee were the only members on the committee.

Dr. Broderick said the committee had been appointed about two years ago and had submitted a report.

Dr. Price said he had received notification informing him that he was a member of the committee. However, to have the committee consisting of only St. John, he thought, was a very good idea, as it would then be possible for them to get together much more easily.

The report of the Legislation Committee was read.

Dr. Broderick said that nothing further had been done, and they had nothing more at this meeting to report. If there was anything further to discuss, he said, now was the time to do it.

It was moved by Dr. Price, seconded by Dr. C. A. Murray, that this matter come up again under the head of unfinished business. Carried.

The Auditing Committee submitted their report, showing all accounts absolutely correct and books in good condition.

On motion of Dr. F. A. Godsoe, seconded by Dr. C. F. Gorham, of St. John, the secretary's report was placed on the records. The meeting adjourned at 1 o'clock for lunch.

TUESDAY AFTERNOON SESSION.

The afternoon session was called to order at 2.30 o'clock by Vice-President Hart, and opened with an interesting paper by Dr. F. A. McAvenney, on "Dentistry Among the Professions."

Dr. J. W. Sangster, of Sackville, discussed the paper and gave some of his experiences in connection with the work, bringing out some very salient points.

Following this an exhaustive and thoroughly instructive paper on "Free Examination of School Children's Teeth: What Oral Hygiene Means to Them," was read by Dr. Fred B. Hicks, of Brookline, Mass. The paper was in the form of a collection of facts of what the people of Massachusetts are doing along this line, and appears elsewhere in this issue.

Dr. Broderick, who opened the discussion spoke strongly in favor of New Brunswick adopting a plan somewhat similar to that which was being practised in Boston, and although not on as large a scale they could probably go about it on smaller lines. He congratulated Dr. Hicks on his excellent paper.

DISCUSSION ON F. B. HICK'S PAPER.

BY W. P. BRODERICK, ST. JOHN, N.B.

When it became known to us that I was to open the discussion on Dr. Hick's very able paper, I can assure you that I was very pleased, for probably there is no subject in the whole range of dentistry that at once appeals to the dentist so much as the consideration of the subject of "Free examination of children's teeth," and subjoined to that, "What oral hygiene means to them." While as a class, people may consider us mercenary, I am sure there is not one dentist among our number who would not willingly give of his time in order to better the dental conditions of the child. I say give of his time, for we all have that to give—not so many of us have money.

Before discussing the subject at all, I wish to congratulate Dr. Hicks on his very able paper, which shows that he has given the subject a great deal of careful thought, and to assure him that we are always glad to have him with us.

I do not propose to enter so much into discussion of the paper as perhaps, to state some of my own views on the subject, and the first thought that suggests itself to me is: "Is it necessary for us to look after school children's teeth and to teach them oral hygiene, and if so the reasons? and secondly, why do we begin at the school children?"

I will take up the last question first. We begin at the school

children, for here is the first chance that the dentist has to meet collectively the boys and girls who are to be the future men and women of society, and the fathers' and mothers of the succeeding generation. We would like to go back of this time and see the infant, and see what care is taken of its oral cavity before, during and after dentition, for probably only the dentist knows what this might mean to the little one. We cannot do this however, and the infant is left to the tender mercies of its mother, whose services oftentimes, through lack of oral hygiene, or ignorance of oral hygiene have to be reinforced by those of the family physician.

Now, for the second question: Is the examination of children's teeth necessary? It does not seem necessary to answer the question before a body of dentists, but just let us consider. We are not theorizing when we say that it is a matter of the greatest necessity, for we know that in many cases practical examinations have been made and the results have been startling.

Dr. Jassen, of Germany, reports out of a total of 100,000 children from 81 to 99 per cent. had diseased teeth and only 1 per cent. had normal, healthy mouths. 90 per cent of the school children of Berlin had defective teeth. Out of 15,000 school children between ages of 6 and 15, 95 per cent. showed the presence of dental caries and 372 anomalies. This in England.

These few cases are sufficient to show that it is necessary. It is thrice necessary—1st, for the sake of the child personally; 2ndly, for the sake of those children who have to be closely associated with one another, and thirdly, it is necessary for the community at large.

Firstly, It is necessary for the child's sake, because we know that the mouth is the open door to the alimentary tract, and through it to all parts of the body. We know that the mouth is alive with all sorts of germs—pathogenic and not pathogenic. We know that in a mouth where there is caries and abscesses, and where no oral hygiene is practised that these conditions multiply the germs, and that food passing through these parts cannot but be contaminated with germs, which germs are thus disseminated throughout the entire body by means of the blood and lymph circulation, and that for these reasons it is absolutely necessary for the child's sake that this condition should be remedied. We also know that the greatest care and attention is necessary at this age in order that the teeth be saved so as to keep the correct articulation and keep all the teeth in place so as to assist nature in its work of development, and also that we may be able to masticate our food properly, mixing it with saliva, and developing the muscles of mastication and the adjacent structure—All these things make it a matter of the greatest necessity, for all these things affect for good or bad the health of the child.

Secondly, it is necessary for the children with whom the child is in close association. How can a school-room atmosphere be

healthy when abnormal conditions like I have mentioned, obtain in the mouths of the children. We hear a great deal about proper ventilation in schools—if the oral condition of the children were improved it would not be so hard to secure a better atmosphere.

Thirdly, for the community at large, it is necessary for the children, who to-day are the citizens, the fathers and mothers of a few years hence. If we can get the fathers and mothers educated along these lines the result cannot be but what we desire. We see then that it is a great necessity, and all that remains is how to accomplish it best. There is no question but that the initiative will have to be taken by the dentists, and there is no doubt at all but that the time is mature for the dentists of New Brunswick to make the start.

CLINICS AND DEMONSTRATIONS.

During the remainder of the afternoon clinics and demonstrations were given, all proving highly satisfactory.

The S. S. White Dental Mfg., Co. Boston, had a splendid exhibit in charge of Mr. Horton. The demonstrations in porcelain inlay work and jacket crowns by Dr. Partridge, who was sent to Moncton by the White Dental Mfg. Co., were greatly appreciated.

Dr. O. B. Price gave a very satisfactory demonstration of extracting impacted lower third molars under semnoforme with elevator.

Dr. F. W. Wright, of New Glasgow, demonstrated very minutely three of his own devices. First, A centrifugal casting machine. 2nd, A device for trueing dental wheels. 3rd, Universal cone socket instrument handles.

The demonstration by Dr. T. S. Sawaya, of St. John, of making backings for Steele's interchangeable facings and the construction of a Steele facing bridge, were very interesting.

A clinic by Dr. L. H. Somers, of Moncton, on anterior gold bridge with porcelain facings that follow absorption, was also very interesting.

Dr. F. B. Hicks gave a clinic on Ascher's Enamel, and it was highly appreciated.

The demonstrations and clinics were given in the spacious hall at the rear of the building. In this room also there were some splendid exhibits by the following:—

S. S. White Dental Mfg., Co. Boston, Mass.

Maritime Dental Supply Co., Halifax, N.S.

Patterson & Patterson, Montreal, P.Q.

Claudius Ash, Sons & Co., London, Eng., and Toronto, Ont.

J. E. Wilkinson Co., Toronto, Ont.

National Refining Co., Toronto, Ont.

Henry K. Wampole & Co., Perth, Ont.

TUESDAY EVENING SESSION.

The evening session was taken up mainly with the reading and

discussing of papers, and a deep interest was manifested in the proceedings by the dentists present. The papers dealt thoroughly with the respective subjects and were highly educational.

Dr. C. A. Murray read an excellent paper on "Silicate Cements vs. Porcelain Inlays."

Drs. L. H. Somers, of Moncton, and H. B. Nase, of St. John, opened the discussion. The former congratulated Dr. Murray on the able paper and said that his rational views showed a clear conception of the subject. Dr. Somers agreed with the views set forth in the paper, and spoke with regard to the color, strength, lasting qualities, etc., of both silicate cement and porcelain.

Dr. Nase said he was pleased to be called upon, but felt that what the other gentlemen had said in this connection was about all that could be said. He stated that his views coincided with theirs. His remarks showed that he had a thorough grasp of the subject.

Dr. Burden spoke in favor of porcelain, and thought that why so many had discarded it was because of the great trouble in cavity formation. Careful manipulation of porcelain, he said, was necessary.

Dr. Hicks, spoke in a way very favorable to silicate, giving his reasons why he favored silicate cement, and stating that he had done away with porcelain inlays.

A paper, which went into the subject fully, was read by Dr. J. J. Daly, of Sussex, "Aluminum Plates."

Dr. H. S. Thomson, of Moncton, opened the discussion, and said that he had been trying aluminum plates, especially during the past year, but he considered it would take more than one year's trial to be in a position to judge on these plates. However, his experience, he said, with them had proved very satisfactory.

It was pointed out by some that aluminum plates did not last and were apt to become porous. This was attributed to contact with base metals in swaging, and injurious action of drugs taken into the mouth.

Dr. Daly said he had five years' experience with aluminum plates and they had given good satisfaction. He told of a case where an aluminum plate had become porous and that when he enquired concerning it he learned that the owner had cleaned it with soda.

Others who took part in the discussion were: Drs. Nase, Hicks, J. H. Barton, Burden, Hart and Price.

"Business Methods in Dentistry," was the subject of an interesting paper by Dr. F. W. Barbour, of Fredericton, it being as follows:

Dr. H. W. Murray, of Shediac, in opening the discussion, said it was a fine paper, but there was one point he would like to question, and that was whether a dentist should make a charge when a patient failed to keep an appointment. Dr. Murray

said it might work sometimes, but it was his opinion it might more often result in losing a patient.

Dr. F. A. Godsoe, of St. John, explained a card system he has with each patient, and which, he said, worked very satisfactorily. He thought thirty days sufficient for anyone to have before remitting. In making charges, he said he went principally by the time consumed in doing the work. He thought that if the Dental profession would come down to a system of keeping accounts it would be much better for all concerned.

Dr. Hart said the remarks were very appropriate, as they had probably been a little slack in this respect.

Dr. J. W. Moore, of St. John, was unable to be present, but his instructive paper on "Oral Prophylaxis in General Practice" was read by Dr. F. C. Bonnell, of St. John.

The discussion was opened by Dr. Bonnell, who dealt with the subject in a masterly manner. He gave a recital of some facts that had occurred in his own practice, showing wonderful results from proper treatment.

In the absence of Dr. Magee, who was called to St. John in the afternoon, his paper on "Clamps and Separating Appliances," was read by Dr. Thomson.

Dr. F. S. Sawaya, of St. John, read the concluding paper, his subject being "The Influence of Deciduous Teeth and Adenoids on Mal-occlusion." It was an instructive paper.

DISCUSSION ON J. W. MOORE'S PAPER

BY F. C. BONNELL, MONCTON, N.B.

Dr. Moore is to be congratulated for his endeavors in this great cause, namely, Oral Prophylaxis.

He states that oral prophylaxis is the name which has been monopolized by Dr. Smith, of Philadelphia. I have great respect for Dr. Smith and his methods of practice, but I think that those here who attended the Dominion Dental Convention at Toronto this year, will agree with me in saying that this monopolization was not accepted (at least all of it) by those this side of the border.

Oral Prophylaxis is not the cleaning of teeth, but it is a treatment for the prevention of dental disorders.

The greatest drawback in treating oral prophylaxis is that we of the dental profession are not able to treat the patient for systemic conditions together with our local treatment. Just to show how unfair this is, both to ourselves and patients, let me cite a case from my own experience.

A patient came to me; severe pain in gums and face, as he expressed it, and the only way he could get relief was to hold the lips and cheeks away from the gums. He had been to three different physicians and they had prescribe tinct. iodine, and

tinect, iodine and aconite, (together with a mouth wash), and still he was not relieved. When I examined the mouth I found a great inflammatory condition of the gum and surrounding tissue, even extending to the upper part of throate and tonsils. The pains were so intense that he had not slept for days.

The treatment I gave is, Dr. McCall's treatment with a few exceptions: I scaled the teeth of all hard and soft deposits. The gum bled freely. Then polished each tooth with fine pumice using a little phenol sodizne with it, just enough to moisten it. I polished all the fillings in his mouth and took all the sharp edges, etc. away so that all surfaces were smooth, thus not allowing any place for food to collect, if teeth were properly cleansed. Then tape was used between the teeth, and every tooth was perfectly clean. A syringe with glyco thynoline was used as the work progressed. An orangewood stick was used instead of the engine with a brush.

After this, glyco thymoline was prescribed to use as a mouth wash and also as a gargle. The patient was given a good lecture for allowing his teeth to get in such a condition and a suggestion was made that he use his tooth brush.

I saw the patient two days afterwards and he said the pain and soreness had nearly all disappeared. It had taught him a lesson. I have given him the prophylactic treatment five times in this last five months and now you would not recognize the mouth. The gums are beginning to assume a good healthy color, there is no bad breath, he enjoys his food and can use the tooth brush without making his gums bleed.

Now, this is a simple treatment. It can be accomplished by any practitioner with a little perseverance; besides being a little more elevating than merely cleaning teeth, rubbing some pumice on a tooth or cleaning with an engine.

The treatment is divided roughly into two parts. One half of the work is done by the dentist and the other half by the patient. The patient will have to come to you every day to prevent decay, if she or he did not take proper care of them at home. You know it is an old saying that a clean tooth never decays.

This reminds me of a story, by Dr. Smith, told at the convention last month.

A professor was lecturing before a class at college on oral prophylaxis. After he had finished he asked the class if there were any questions. One man arose to his feet and said: Dr., if a clean tooth never decays, why should we practice oral prophylaxis? Then we would be taking money out of our pockets. Personally, I do not think man will make a success of dentistry from a scientific standpoint. Do you?

There are a variety of opinions about antiseptics to be used in oral prophylaxis.

Astringosol solution is good:

Tinc. Thymol,	1 Dracham
Oil Wintergreen.....	1 Dracham
Zinc Chloride.....	20 grains
Water	8 ounces

The only objection to this in my mind, (and every person has a right to their own opinion), is the presence of *L.n. Cl.* which is a disinfectant, and would probably harm the tissues before it reached the bacteria; thus lessening the resistance of the tissue to bacteria, and we have enough to contend with, without making matters worse.

Can any person here tell us the cause of recession of gums? Why, the result of disintegration of the tissues surrounding the tooth; the stagnation of the blood supply. But what causes this, nobody knows. Again take into consideration the number of immune patients and it would bear this out.

Along the line of research in the case of immunity, Dr. Lowe has tried to solve the question; Why they are immune, and until he or some one else finds out why these bacteria plaques (that Dr. Moore refers to), and the deposit beneath the free margin of the gum, are there, we will have to be satisfied with our local treatment as far as it goes.

Again there is the educational value if a woman with a large family is treated with the oral prophylaxis treatment and sees the benefit. The chances are that she will educate the children along those lines, who having healthy conditions in the mouth will digest their food properly and be better physically to face the battle of life.

Dr. Hart said the paper went into the subject very fully and gave some very fine points. He said he had had very little experience with adenoids.

NOMINATION COMMITTEE.

The chairman appointed Drs. C. A. Murray, F. A. Taylor, Moncton; H. C. Wetmore, St. John, and G. J. Sproul, Chatham, as the Nominating Committee.

The Secretary read the report of the representative (Dr. J. M. Magee, St. John), to the Dominion Dental Council, which met in Toronto, June 1st, 1910.

It was moved by Dr. Godsoe, seconded by Dr. C. A. Murray, that the report be received. Carried.

It was moved by Dr. Godsoe, seconded by Dr. Daly, that the Society place on record its appreciation of Dr. Magee's election to the presidency of the Dominion Dental Council, and that a letter of congratulation be tendered him. Carried.

Adjourned.

WEDNESDAY MORNING SESSION.

The initial matter to be considered at the morning session was

the place for holding the next annual meeting, and on motion of Dr. C. A. Murray, seconded by Dr. Sangster, it was decided to hold it at St. John.

Dr. C. A. Murray brought up the matter of giving instructions in dentistry to nurses in training in the different hospitals in the province. He moved that the President of this Society appoint a committee of one dentist from each city or town, where there is a hospital situated, to consult with the different Hospital Boards to ascertain if they would be willing for a dentist, or dentists, selected by the New Brunswick Dental Council, to give instructions to the nurses, who are training at the different hospitals in the province, on the subject of dentistry along such lines as would be beneficial to their patients; this committee to report individually to the N. B. Dental Council not later than November 31st, 1910, and if reports are favorable the council to select a dentist in the province to give a lecture once a month at the different hospitals for the benefit of the nurses, and that the lecturer report each year to the N. B. Dental Society at the annual meeting.

This was seconded by Dr. H. B. Nase.

Dr. F. E. Burden, moved in amendment that the Hospital Board and not the Dental Council be requested to appoint the lecturer.

Dr. Broderick, did not think a motion of any kind was necessary, as he thought that if any dentist wanted to give a lecture there was nothing to prevent him from doing so.

Dr. Nase was of the opinion that the Dental Council should select the lecturer.

Dr. Godsoe favored appointment by the Society in preference to the Hospital Board.

Dr. Broderick said that every dentist should have an opportunity to offer his services.

Dr. C. A. Murray stated that where it was everybody's duty it would be nobody's duty. If a dentist was appointed, he said, he would be under a responsibility.

Dr. Burden then said that he was not particular who made the appointment so long as no one dentist monopolized the work. The medical doctors at the hospital, he said, were appointed by the Hospital Board.

Dr. C. A. Murray said it was here that "political pull" got in its work.

The following was added to the motion, which was then carried unanimously.

"Said council be instructed that no one dentist shall monopolize the whole term."

ELECTION OF OFFICERS.

The election of officers resulted as follows:

President,—Dr. E. R. Hart, Sackville.

Vice-President.—Dr. F. C. Bonnell, St. John.

Secretary-Treasurer.—Dr. F. A. Godsoe, (re-elected), St. John.

Permanent Auditing Committee.—Drs. H. C. Wetmore, J. G. Leonard, and C. F. Gorham, St. John.

It was moved by Dr. Sangster, seconded by Dr. Daly, that a hearty vote of thanks be tendered the Moncton dentists, City Council, and Monctonians for the way in which they had been entertained during their stay in Moncton. Carried.

Dr. Hart, appointed the following committee to consult with the Hospital Boards in reference to giving instructions to the nurses on dentistry:

Dr. F. A. McAvenney, St. John; Dr. C. A. Murray, Moncton; Dr. F. W. Barbour, Fredericton; Dr. J. W. Moore, St. Stephen; Dr. G. J. Sproul, Chatham, and Dr. P. McNichol, Campbellton.

REPORT OF THE COUNCIL.

Dr. Godsoe, submitted the report of the Council. The financial statement, which shows the finances to be in good condition, is as follows:—

Cash on hand, July 13th, 1910	\$200 00
Cash received from dues	159 28
	<hr/>
	359 93
Paid out as per vouchers	129 93
	<hr/>
Balance	230 00

The report also had the following:

“Drs. F. E. Burden, of Moncton, and F. S. Sawaya, of St. John, were registered, they having fulfilled the requirements of the act.

“Realizing that our Dental Act is faulty the Council would suggest ‘that the Society take steps to procure the necessary amendments to the act; that the whole Society be a Committee, with the Council as a nucleus, for preparing the bill; that drafts of necessary amendments be printed and distributed to each dentist in the province with instructions to place the matter before his county representative in the legislature, and that any members of the Society wishing to amend the act will forward his amendment to the president of the Council.’ ”

It was moved by Dr. Nase, seconded by Dr. C. A. Murray, that the report be adopted and suggestions acted upon. Carried.

TRIP TO THE NATURAL GAS AND OIL WELLS.

One of the most pleasing features in connection with the convention was the auto trip to the Natural Gas and Oil Wells, in Albert County. The wells are situated on the Hillsboro' road about eleven miles from Moncton. The road abounds in natural scenery, the beauty of which is decidedly picturesque and fascin-

ating, thus affording a splendid ride. It was a trip that all enjoyed to the utmost, and one that will not soon be forgotten, everything seemingly going to make it a memorable outing.

About 11.30 o'clock Wednesday morning, with the sun streaming its rays from an almost cloudless sky and with a cool breeze fanning the atmosphere, fourteen automobiles, conveying about sixty-five eager and expectant sight-seers, set out from the City Building bound for Oilville. On the way down several of the autos came to grief and were obliged to remain by the roadside until repairs were effected.

In due time all arrived at Oilville, and it was about 1.45 o'clock when they reached the scene of operations, where Well No. 10 was to be shot for their benefit. This well was shot at 2.00 o'clock and was a decided success, proving a revelation to the majority of those present. Oil was sent into the air to a height of over 75 feet, and it was estimated that between forty and fifty barrels of oil were thrown out by the concussion. The well was 1900 feet deep, and in shooting it, some 240 quarts of nitro glycerine were used. Well No. 10 has turned out to be a splendid gas and oil producer. Those who witnessed the novel sight, and were pessimistic as to there being a great quantity of gas and oil in that vicinity, are now firmly convinced that there are great possibilities ahead of Albert County as an oil and gas producing county.

Some time was spent in sight seeing and in this way a great deal of useful information was obtained. Everything of any interest was visited—including the different wells and oil tanks—and machinery inspected. The visitors were much impressed with mechanism for pumping the oil. At Well No. 8, which is capable of producing five million cubic feet of gas daily, a demonstration was given showing its remarkable pressure, some 300 pounds per square inch.

After everything had been seen at the wells, the party set out for the boarding house at Oilville, where the proprietress, Mrs. Steeves, had an excellent spread prepared on the lawn in front of the house. Needless to state ample justice was done to the edibles provided, and which were greatly relished, probably more so from the fact that Natural Gas had been utilized in cooking. Dr. O. B. Price presided and the following toast list was honored:

"King," responded to by singing the National Anthem.

"Our Guests," proposed by the chairman and responded to by Dr. F. A. Godsoe and Dr. W. P. Broderick.

"New Brunswick Dental Society," proposed by Dr. C. A. Murray and responded to by Dr. H. S. Thomson, Dr. F. W. Barbour, Dr. Sproul, and Dr. E. R. Hart.

"Our Sister Province," proposed by the chairman and responded to by Dr. Wright, New Glasgow.

"Provincial Legislature," proposed by the chairman and responded to by Hon. C. W. Robinson and Hon. F. J. Sweeney.

"Ladies," proposed by Dr. L. H. Somers, and coupled with the names of Dr. P. J. Gallagher, Dr. A. B. Teakles, Dr. F. C. Bonnell, and Dr. H. S. Thomson.

"Maritime Oilfields Co.," proposed by Hon. F. J. Sweeney, and coupled with the name of Mr. O. P. Boggs.

"Our Guests from the Neighboring Republic," proposed by the chairman, and coupled with the name of Dr. Fred B. Hicks, of Brookline, Mass.

"The Moncton Dentists," proposed by Dr. Godsoe, and coupled with the names of Dr. F. B. Reade, Dr. F. A. Taylor and Dr. F. E. Burden.

The party started on the return trip about 4.30, but had only gone a short distance when it commenced to rain in torrents, the sky having clouded and taken on a threatening aspect before lunch. Notwithstanding this sudden change in the weather the dentists and their friends, including a number of ladies, greatly enjoyed the trip. They arrived in Moncton in time for the visiting dentists to catch the evening trains for home.

Those who took in the trip are deeply indebted to Mr. O. P. Boggs, the genial Manager of the Maritime Oilfields Co., for his indefatigable efforts to make their stay at the wells as pleasant as possible. He was kept busy the entire time answering questions and explaining things in connection with the plant, and to his courtesy and affable disposition is due in a large measure the success of the outing.

Automobiles were kindly furnished by the following:—C. W. Robinson, F. W. Sumner, F. J. Sweeney, F. C. Robinson, E. W. Givan, W. S. Smith, J. B. Sangster, P. S. Archibald, M. Archibald, Dr. E. O. Steeves, Dr. F. B. Reade, Dr. F. J. White, L. B. Read and H. J. Leaman.

COLLEGE OF DENTAL SURGEONS, QUEBEC PROVINCE

The annual meeting of the Licentiates will be held on Monday the 24th of October, in Montreal. The program outside of general business and election of Governors, includes a paper and clinic by Dr. Kelly, of Portland, on "Oral Prophylaxis," and several clinics by local dentists. A dinner will conclude the meeting.

The Annual Union Meeting of the Seventh and Eighth District Dental Societies of the State of New York, will be held at Rochester in the Hotel Seneca on November 10th, 11th, and 12th, 1910. An especially good programme has been prepared. All ethical dentists are invited to attend these meetings.

GEORGE C. LOWE,

Rec.-Secretary.

Reviews

Anatomy, Descriptive and Applied.

By Henry Gray, F.R.S., late lecturer on Anatomy at St. George's Hospital, London. New (18th) edition, thoroughly revised, by Edward Anthony Spitzka, M.D., Professor of Anatomy in the Jefferson Medical College of Philadelphia. Imperial octavo, 1496 pages, with 1208 large and elaborate engravings. Price, with illustrations in colors, cloth, \$6.00, net; leather, \$7.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1910.

The announcement of a new edition of Gray's Anatomy interests every one concerned with medicine, dentistry, student and practitioner alike, for it deals with the only science entering into every medical question. Henry Gray was a two-fold genius, as he combined a thorough knowledge of human structure with equal insight as a teacher. Neither of these qualities singly could have produced a book in which matter and method were so perfectly welded into an ideal teaching instrument. Gray's inventive mind devised the scheme of engraving the names of the parts directly on them, so that the eye caught at a glance and photographed on the mind their nomenclature, position, extent and relations, the four cardinal points. His work marked an immense advance over its competitors, and sprang at once to the forefront, where it has remained ever since, more than a half-century.

This new edition, the eighteenth, is the most thorough of all revisions, every line having been scrutinized for possible improvement, anything in the nature of an obscurity being clarified, and whole passages rewritten. The changes have been so thoroughgoing that the book has been entirely reset in new type. The latest developments in this active science are included, so that this single volume gives a complete account of human structure according to the latest views. The Editor, Dr. E. A. Spitzka, is Professor of Anatomy in the Jefferson Medical College of Philadelphia, and one of the world's foremost anatomists. He is also a competent artist, and the drawings from his hand convey his own accurate knowledge directly to the mind of the student. Many of the former engravings have been replaced and more added, so that the series of illustrations is more abundant than ever before. This applies also to the use of colors. Nothing has been spared to maintain the reputation of the book as being the easiest from which to teach or to learn, and as facilitating to the utmost the acquisition and retention of a sound knowledge of its subject.

Text Book of Operative Dentistry.

A text-book of Operative Dentistry by various authors, edited by C. N. Johnson, M.A., L.D.S., D.D.S., Professor of Operative Dentistry in the Chicago College of Dental Surgery; Editor of

the "Dental Review," second edition, revised and enlarged with six hundred and forty-eight illustrations. P. Blakiston's Sons & Co., 1012 Walnut Street, Philadelphia, Pa., 1910.

It is very gratifying to the publishers and authors to note the cordial reception given the first edition of this work on the part of the profession. The issue became exhausted in an incredibly short time, necessitating the preparation of the present edition. Even in this brief period much revision has been found possible in the general improvement of the work. Substantial additions have been made to some of the chapters to bring the work thoroughly up-to-date. This is notably so of the chapters on "Hygiene of the Mouth," "Construction of Gold Inlays," "The Planting of the Teeth," and "Orthodontia." This with the added illustrations, about thirty in number, will make the volume more complete and we trust more satisfactory.

COMMITTEE OF ARRANGEMENTS FOR DR. DOWD'S LECTURE
AT ST. THOMAS, SEPTEMBER 9th, 1910



F. E. BENNETT
Chairman of Committee of Arrangements.



C. C. LUMLEY



T. C. TRIGGER

Dominion Dental Journal

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VOL. XXII

TORONTO, OCTOBER 15, 1910

No. 10

ELECTION OF DIRECTORS OF THE ROYAL COLLEGE OF DENTAL SURGEONS.

Before there are any nominations made and before even the notices are sent out, or there are any candidates known to be in the field, it might not be amiss to point out some of the responsibilities, sacrifices, and qualifications of the Board of Directors. The dental profession is in their keeping. They must stand at the forefront of every move in the profession. They must be as alert as hawks and as far seeing as statesmen. They must be students of the past and able to prophesy for the future. In the past our Board has shown courage and foresight in dealing with infractions of the dental act.

Too much credit cannot be given the Toronto representatives for forestalling an invasion of the dental act of Ontario before there were vested rights. Dr. Pearson, supported by Dr. Burt, of

Hamilton, began an attack on those who conducted a dental practice and were not members of the Royal College of Dental Surgeons. This work has been most ably conducted for the past three years by Dr. Seecombe the Toronto representative. In fact, he is only now beginning to see success crowning many hours, days and months, of anxious labor. Through his labors and the foresight of the Board it has been established in the courts that any person who owns or conducts a dental practice, though he may not see a patient is practising dentistry. Is this not worth much for the profession and the public. Such foresight and persistence is what is needed in a representative from the profession to the Board.

In England at the present time there is an application to the Legislature for a new dental act, because the act of 1878 has failed to protect the public from unqualified and dishonest practices. It is said the act of 1878 would have so protected the public if it had been at once enforced, but so many persons and companies have been allowed to begin and continue in practice, and so many vested rights have been established thereby, that the only method now possible is to clean the slate and accept into the profession all kinds of unqualified persons and make a new act and enforce it. With all the boasted learning and wisdom of the General Medical Council, of England, how much more wisdom and foresight has been shown by the Boards of Canada.

A member of the Board of Directors must be willing to give time to the study of the problems of the profession, both of the past and present. He must be willing to sacrifice a little for the honor of directing the affairs of his profession. He should not only take a keen interest in the government of the profession and the college, but he should also be a live member of the voluntary dental organizations of the province. He should be a leader in every effort, locally and provincially, for the betterment of the profession.

Besides this a member should be a man of affairs. One who has had some experience in meeting and dealing with people. In the past the majority of the members of the Board have had long experience in municipal and educational affairs. Because a dentist is a genial, affable, kindly man, or is a wire pulling, scheming politician, does not necessarily qualify him as a useful member of a Board of Directors. It is the live, progressive active man of affairs who is needed.

GENERAL PRESS ON FRAUDS IN DENTISTRY.

It has been known to the dental profession for a great number of years that the public have been systematically defrauded by certain dental companies and dental parlors. In Europe they have operated under the name of American dentists. In Canada they have taken the name of some city, either in the United States or Canada, which would imply that they had the methods or education in vogue in that city. The long suffering public are only now beginning to realize through the medium of the unhampered press how the swindling is done. Every time any of these places has been attacked by the dental profession or the courts for practising without a license the press usually come to their rescue with the claim that jealousy was at the root of the prosecution. In fact, some courts have allowed themselves to be persuaded by eloquent counsel that these places were conducting a thoroughly legitimate business and were succeeding so abundantly, because of newer and better methods than those followed by the regular practitioner. Dr. Secombe, the Chairman of the discipline committee of the Board of Directors of Ontario has collected a mass of evidence under oath from those who have been employed in some of these places, which would under ordinary circumstance be sufficient to have them at once closed. In the September issue of Hampton's magazine, appears an illustrated article on "The Tooth Tinker." It explains a great number of the methods used in these places to get money from the public without rendering any adequate service. The September issue of "The Live Wire" of Winnipeg, has come to hand with an illustrated article on the front page. It is an unreserved, uncompromising onslaught on "The Winnipeg Dental Parlors," headed by Dr. Glasgow. The article speaks of those employed as "butchers" a "disreputable outfit," "bunglers," and many other strong expressions.

ILLUSTRATED LECTURES ON DENTISTRY.

In the last issue of the Dominion Dental Journal appeared a notice that the Canadian Oral Prophylactic Association had a set of lantern slides useful as illustrations in giving lectures on oral hygiene to public audiences. Since then the secretary has had several applications for the slides. He suggests that it would be

wise for those wishing the slides to send in their applications as early as possible giving the date on which they are needed, because there may have to be some adjustment of dates so that as many as possible may be accommodated. In a few weeks the association hopes to have a set of large charts four and a half feet by five feet, together with descriptive literature for lectures, where the lantern cannot be used. They will also have a set of cuts and slides illustrating the article which was published by the Education Department of Ontario in the early part of the year. All, or any of these slides and charts may be had free of charge from the secretary, Dr. A. J. Broughton, 305 Markham St., Toronto. Every dentist in Canada is interested in this work and should do his part.

WORK OF THE PUBLICITY COMMITTEE, TORONTO.

The publicity committee of the educational committee of Toronto is meeting with much encouragement. The Toronto Globe in its issue of Thursday, September 29th, published an excellent editorial on the importance of the teeth to the general health. The Mail and Empire, of Toronto, has taken the stand editorially that there should be a dentist appointed to the staff of inspectors of the children in the public schools. The Toronto World has written several articles on the care of the teeth, many of the papers throughout Ontario have made very complimentary reviews of the bulletin recently sent out by the department of Agriculture and prepared by the Educational Committee of the Ontario Dental Society. The public will realize the important part the mouth plays in the maintenance of health, if the dental profession is willing to sacrifice some of its time in the work. Give the matter to the press and they will publish it, if it is for the general good.

BULLETIN 181.

The educational Committee of the Ontario Dental Society prepared a pamphlet on the teeth and their care and through the interest the Department of Agriculture has in the dissemination of knowledge has published several thousand and distributed them to the Women's Institutes, the teachers and dentists. The Com-

mittee is to be congratulated for the excellence of the article and for interesting the department in its publication. We quote a very significant sentence found in the foreword. "Should demand arise, the department may issue further bulletins dealing more extensively with the various phases of the subject that are of particular public interest." It is indeed gratifying to know that the importance of the care of the teeth and mouth is being recognized by those outside of dentistry.

DENTISTS TO BE APPOINTED TO THE GENERAL HOSPITAL, TORONTO.

About a year ago Dr. Brown, Superintendent of the Toronto General Hospital, wrote the secretary of the Toronto Dental Society asking if it could be arranged to have a dentist appointed to the staff of the General Hospital. The matter has been under discussion several times since, until it was finally arranged that an appointment should be made by the General Hospital Board. It is expected that the appointee will give one hour a day to the examination and treatment of such cases as need his services in the out-door clinic or in the wards under the same conditions and the same privileges as any other member of the staff. We hope to be able to give the name of the appointee in our next issue.

DENTAL LECTURES TO NURSES IN TORONTO.

Arrangements have been made to have lectures delivered on dentistry to the nurses in training for the session of 1910-11, at the following hospitals in Toronto:

Grace Hospital—Lecturer, R. G. McLaughlin.

Isolation Hospital.—Lecturer, A. A. Stewart.

Hospital for Incurables.—Lecturer A. W. Thornton.

Hospital for Sick Children.—Lecturer, A. E. Webster.

St. Michael's Hospital.—Lecturer, A. J. McDonagh.

Western Hospital.—Lecturer, R. J. Reade.

Weston Hospital.—Lecturer, B. O. Fife.

The appointment of the General or St. John's have not yet been made.

MILLER MEMORIAL FUND.

Dr. R. J. McLaughlan, Toronto, is chairman of the Committee to collect the fund in District No. 3. Dr. J. A. Bothwell, 26 College St., is secretary. The members of No. 3 will receive a notice in a few days which should be read carefully and acted upon. The chairman expects the collections all to be in the Treasurer's hands before the New Year. Any dentist who carefully reads the literature sent him will be glad to do something to assist this great work and place Canadian dentists in a fair light before the profession of the world. It is an opportunity to bring Canada and Canadian dentistry permanently to the front.

Editorial Notes

Dr. Clarence Eastwood, is practising in Moose Jaw, Sask.

Dr. A. M. Weldon, of Norwood, is now practising in Beaverton.

The Maritime Dental College has opened its Session with a satisfactory attendance.

The Royal College of Dental Surgeons of Ontario opened the School of Dentistry, Toronto, September 27th, 1910.

Drs. Sparks, Knapp, Ackroyd, and Winnett, of Kingston, attended the Eastern Ontario Dental Association at Ottawa.

The Ottawa Free Press editorially advocates inspection of the teeth of the Schools, and reports of the conditions found sent to the parents.

Dentists must be scarce in Saskatchewan. The Hanley paper accuses the Dundurn weekly of enticing their dentist to leave Hanley and go to Dundurn.

Nominations of candidates for Governors in Quebec will be received by the Secretary from September 20th to 30th, inclusive. Candidates must have a proposer and a seconder.

Officers of the Eastern Ontario Dental Association: President—Dr. R. J. Reade, Toronto; Vice-President—Dr. A. T. Morrow, Maxville, Ont.; Secretary-Treasurer—Dr. W. C. Macartney, Ottawa.

Dr. Dowd, gave two admirable lectures to the people of St. Thomas on dentistry. There were about two thousand at the afternoon lecture and about six hundred at the evening lecture.

In the report of the Dominion Dental Council examinations, which appeared in the last issue of the Journal, Mr. Madell was not given credit for passing in Physics, Chemistry and Metallurgy.

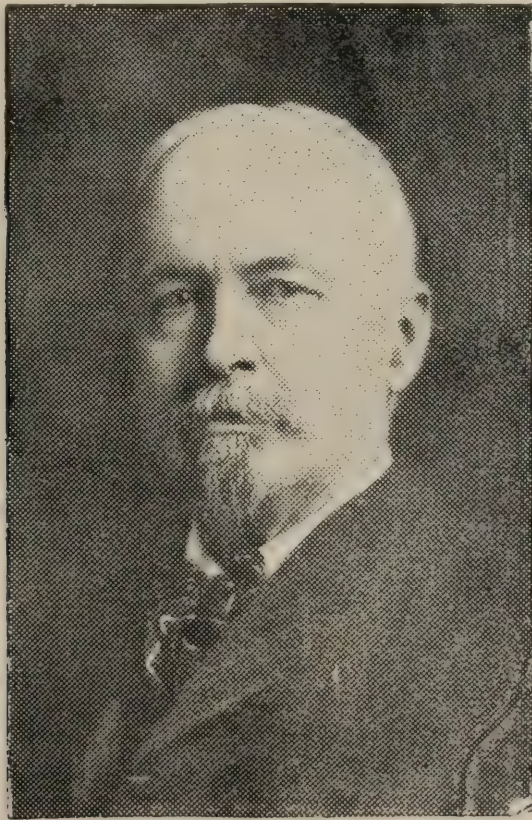
The Temple Pattison Dental Supply Company has opened a branch depot at the corner of College and Huron Streets, Toronto. This will be a great convenience to the students at College and for the dentists in the north-western part of the city.

The Laval Dental School, of Montreal, opened its seventh year, on September 15th. The attendance of students this year numbers a hundred, all French-Canadians. As usual a few European students are amongst the fourth year. The school has now at its disposition a large building, belonging to the University.

By an oversight, the Dental Review was not given credit for an article by Dr. Johnson, published in the September issue of the Dominion Dental Journal. We rarely use selected matter, but this one of Dr. Johnson's is an especially good one and was the subject of much controversy.

The Secretary, Dr. Endore Dubeau, of the Quebec Dental Association, sends out the following notice. The annual meeting of the association will be held in Montreal, Monday, October 24th, at 9 a.m. The programme will include a paper by Dr. Kelly, of Portland, a lunch and clinics; details will appear later.

In September, Dr. Dowd, of Toledo, addressed two meetings in St. Thomas, on the care of the teeth. On November 15th, he will address the teachers of Toronto in the hall of the Women's Christian Guild, Toronto, under the auspices of the Toronto Dental Society. In the evening he will be banqueted by the Toronto Dental Society at which he will give an address. Over fifty prominent educationists and those interested in public health and sanitation will be present. It is the desire of the Society that



DR. DOWD

those who are interested in this work, and who are directing it, shall be so impressed with the importance of the teeth and oral cavity on the public health, that measures will be at once taken to have a dental inspector appointed, whose duty shall be to instruct teachers and pupils how to take care of

their teeth and mouths, to the end that length of life and happiness may be increased.

Dr. R. J. Reade, has gone to British Columbia to conduct an examination in Dentistry. The reason for the long trip and his appointment arose through a candidate who failed, bringing action against the Board in the courts for conspiracy to prevent him from practising in B. C. We congratulate those who had the wisdom to make such a wise choice of a judge in matters of dentistry.

Some of the public school principals in Toronto are arranging to have addresses delivered to the parents and children on good health and allied subjects during the coming winter. Mr. Wallace, the principal of one of the East Toronto schools, has made arrangements with Dr. Doherty to open the course with a lecture on the care of the teeth. As there are many of the dentists throughout Canada who are members of school Boards and Boards of Education it might be within their province to suggest a similar course for their own schools.

Arthur Stranger, alias T. Pinchback, has been sentenced to six months for fraud and for breaking jail at New Denver. Stranger is a young Englishman recently arrived. In Silverton he practised dentistry, his only instruments being a knife, awl, corkscrew and carbolic acid. He filled teeth with ordinary chewing gum, having several patients, some of whose mouths he burned with acid. He displayed a fake diploma, but business became slack so he went to New Denver. Here he was arrested on the Silverton charge, but broke jail. He was re-arrested next day and taken to Nelson, and tried, being given six months.—Winnipeg Free Press.

FOR SALE—Cheap Gasometer (Buffalo Dental), in perfect condition; Apply Box 5, Dominion Dental Journal.

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Original Communications

ORAL PROPHYLAXIS.

BY D. D. SMITH, D.D.S., M.D.

Read before the Canadian and Ontario Dental Associations at Toronto, June 1st, 1910.

By way of preface allow me to say that it is not my purpose to bring to this Society any Munchausen tales or Cervantes romances, nor to present the vagaries of hallucinations of some dental Don Quixote in the role of mere sensationalism. I have come to study with you certain neglected conditions of the human mouth and teeth, which belong to dentistry alone; conditions that have engaged my attention with increasing interest since the first presentation of this subject before the Washington City Dental Society on the tragic night of February 15th, 1898.

An experienced novelist once said to a group of young writers, "Begin your stories well; a good beginning is half the battle." Then with a smile added—"Always bear in mind the case of the young man, who wishing to marry, secured the favorable consideration of a close-fisted old father by opening the interview with the proposition, "I know a way sir whereby you can save money."

This paper may not "begin" or continue my story "well" in the meaning of the novelist for the object is not the presentation of methods for the making or saving of money; it is rather to review present methods, which have proven inadequate for the prevention or removal of disease in the mouth and to set forth certain other methods which appeal to reason because founded on physiological states and pathological conditions. The representations embodied in this paper are substantiated by wide clinical experience and the benefits accruing therefrom have been fully demonstrated in practice.

Does anyone imagine that the prime object of dentistry in the past has been the prevention of decay in human teeth? Listen to the words and catch the spirit of two young men holding diplomas from representative schools of dentistry in the United

States, one from the dental department of a leading University. "Oh! yes, Dr. Smith" said one: "I have no doubt this treatment of yours will stop decay, but if I should stop decay what am I going to do?" The other replying to the question, "What are you practising dentistry for?" Answered: "I am practising dentistry to support my family, and I can make more money filling teeth at \$3.00 apiece than by trying to force your methods upon people." Could the implication be clearer or could the fact be more forcefully stated that to the ordinary young college graduate, dentistry is the filling of holes in teeth, (for a consideration). And what shall be said of teachings in schools of dentistry in which such sentiments stand forth as the foundation of a dental professional career?

One object of this paper concerns the more consistent methods of searching for the unsettled cause or causes of decay in human teeth. Like an illusive will-o-the-wisp, intelligent and satisfactory explanation of caries in the human mouth has heretofore evaded the theorist and escaped all efforts of control. It is my hope that we may uncover at least some of the myasmatic sources of this trouble, and present better methods and a more intelligent practise for its elimination. An announcement such as this may not find ready acceptance, but if it shall in any degree arrest the attention of dentistry and lead to investigation, much will have been accomplished. Investigators, theorists, have in the past labored as one who beats the air, in a fruitless search for causes. Dentistry has sought only to repair the ravages of decay. Until the promulgation of the oral prophylaxis theories there appeared no consistent effort in the line of prevention. Even this, if it shall be considered from the theoretical and commercial standpoint only, will very likely be treated as was the traveller on the Jericho road, who, falling into the hands of robbers, was wounded, dispoiled and left for dead. Priests and Levites who should have been first to his relief, passed by, but on the "other side;" but a poor Samaritan chancing that way stopped and examined; he bound up the wounds; he poured in oil and wine; he set him on his own beast and carried him to an inn, and out of the little that he had gave for his relief. I leave the parallel for your own tracing. Solemn visaged theorists, with eyes closed to rational and proven means, are passing by, *but they are on the other side*, giving no heed to the crying needs of a suffering humanity. Fearing to be regarded as "cleaners of teeth," they are scoffing at the greatest benefit to dentistry of modern times.

Dr. Kirk in an editorial in the Cosmos, declared that dental writers circle around "The Same Old Thing;" and Dr. Truman of the same College, most truthfully said, "We are, as a profession, floating in shallow water." It is certainly true that the thought and energies of the profession have centered upon the treatment of a condition. The matter of greatest concern has been filling materials, instruments and methods of manipulation with

little or no attention given to causes. Dental journals are filled with matter growing out of such subjects as "Mending Vulcanite Plates," "The Use of the Rubber Dam," "Treatment and Filling of Roots," "Sterilization of Instruments," "Gold vs. Amalgam," "Professional Ethics vs. Patients," "Saving a Tooth 200 Years Ago," "Soapstone," "The Boss' Dream," "Dental Science and Literature," "Report of Committees," "Extension for Prevention," and a thousand other matters equally inconsequential, whilst they are without a page or line upon the subject which vitally concerns the health and comfort of every class and condition of humanity, namely, "The prevention of disease in and through the mouth." "Shallow water" indeed! Witness the unthinkable experiment of M. Choquet on a tooth of a sheep in an effort to induce caries. An attempt was made to confine infected bullion with cement in a made cavity in a sheep's tooth, with the result that after nine months the dentine had a tinge of yellow and was slightly softened; and this experiment (?) was accounted a proof of the inoculation theory of decay; as though there could be any analogy between the human mouth and that of the herbivorous animal in the matter of tooth decay. Oh, the unspeakable simplicity of pseudo-science in its vain efforts to establish theories for decay in human teeth! What results have come from any of the unsatisfactory efforts in the past? None whatever. The substitution of simulated decay, the tooth being out of its natural environment, is wholly unavailing as a matter of scientific investigation. No reliable results can come from such experiments for all forced decay is but artificial decomposition wholly unlike true tooth decay. Teeth are the subject of true decay only when they are in the normal menstrum and temperature of the mouth. A tooth removed from jaw, even though it may have been the subject of rapid decay when in the normal menstrum and fixed temperature of the mouth, ceases all decay at once. No change similar to true decay in a tooth can be artificially produced. The one phenomenon that comes into view in all tooth decay is that true caries of the teeth is due to tooth environment; and that temperature and mouth fluids are the chief and important factors as causes. Great stress has been laid upon what may be called the chemico-bacteriological theory of Miller; but what preventive measures have come into the practise of dentistry in the light of these theories? Teachings may have been modified to a degree, but waiting for decay and tooth filling are the same as before. Mouth infection, pyorrhea and decay are as prevalent as before these bacteriological theories were promulgated.

Decay in enamel has recently been shown by means of some very beautiful screen pictures made by Dr. Black, to be, possibly, somewhat different from decalcification or decay of the dentin and the profession for the moment looks up and says, "how wonderful." But does that affect the cause or treatment of decay in

enamel? No one pretends that it does. However superficial or slight the decay, there is suggested but one and the same old remedy, viz., cutting out of the affected enamel and supplying filling material in its place. Dr. Black has made these pictures evidently with great care, and with great credit to himself. They show more clearly than anything heretofore presented the paramount importance of forced and frequent change of environment for the teeth, which is secured only by the prophylaxis treatment. It is admitted by Dr. Black that the real cause of enamel decay is an acid state of mouth fluids in which the teeth are constantly enveloped; as this condition cannot be reached, directly or indirectly, by any prophylactic application or medication, the Prophylaxis Treatment is the one and only resort as a preventative. Among the latest fads of dentistry we find the X-ray specialist. The work of this specialist adds very little if anything to diagnostic perception. The X-ray "treatment" for pyorrhea, which some time ago was rushed from Cleveland to be exploited in Philadelphia as a great discovery, is as yet but a dangerous force, having no apparent therapeutic value in the treatment of pyorrhea. Pyorrhea is a pathologic state which is impossible of influence for good, much less cure, without surgical treatment. The X-ray, I believe, has yet to make its first exhibit of benefit to justify its dangers in dentistry. Time would fail me to attempt discussion of the recent worse than senseless "opsonic" treatment of pyorrhea; the vaccination theory and the unreachable and harmless sulpho-cyanite of potassium (in saliva), and many others, as causes of tooth decay. These theories are so visionary and dreamlike that merely to make mention of them should be sufficient.

If, now, we have the courage to look impartially at real conditions as they exist to-day, we must admit that dentistry *at its best* has made but little progress in the last quarter of a century in preventing, not to say conquering, diseases of the mouth and teeth. Implements pertaining to the dental paraphernalia have been improved as have some filling materials (even this has been done mainly by the intervention of patentees connected with Commercial Houses), also some methods of operating as in crown and bridge work, but diseased conditions—caries, mouth infection, and pyorrhea are as prevalent to-day and as surely a menace to health as before dentistry began to boast of its great modern advancement. However, firmly engrafted the present teaching and methods of practice in dentistry may be, it is clear to the impartial observer that they are as inadequate as curatives, as they are ineffective as preventatives. The challenge that more teeth are ruined and more disease engendered through ignorant, unwarranted, sometimes malicious interference on the part of dental manipulation, than are permanently saved by an educated, intelligent, skilled practice, we believe may be successfully made.

In this connection emphatic protest should be put on record against some methods of dental practice that have found favor even with a few so-called progressive men. What is known as "Extension for prevention," had its origin in Chicago, and through the regrettable zeal of Dr. Wedelstaedt there has been formed, particularly in the West, a number of Dental Clubs to extend the practise of it. This "extension for prevention" idea, as enunciated by Dr. Black, is often wholly misunderstood and as often misapplied in practise. It has engendered erroneous views; it has encouraged unwarranted and unnecessary destruction of tooth structure; it has also entailed expense, labor and suffering to patients to the prejudice of dentistry. The phrase "extension for prevention" is a "catchy" play upon words that has run wild with uncurbed mallet enthusiasm in young men of the West, and as a consequence Dental Clubs have carried the matter far beyond the bounds originally set for it. These Clubs have even encouraged the drilling out of good gold fillings "some of them very beautiful," as Dr. Wedelstaedt acknowledges, but requiring," he says, "to be replaced by fillings of a somewhat different character." What interpretation can be placed upon such a declaration except that of wanton interference with efficient fillings to satisfy a mere whim. "I have seen," he says, "no less than a hundred patients" (presumably in about one month), "for whom it will be necessary to replace a large number of fillings, and in not one case was there a practical application of the extension for prevention theory." Eighty per cent. of the dentistry of the present, if we accept the statements of this writer, is failure. I quote his words exactly as they appeared in a dental journal. "Fully eighty per cent. of the work I make is the removal of, and the replacement of poorly made fillings which have failed on account of non-extension for prevention." I unhesitatingly declare such statements gross exaggeration. To give further emphasis to the unsafe teachings of the leader of these Western Clubs, I quote further: "It is now well understood that filling material without cavity preparation is not a potent factor in saving teeth, but filling material in connection with cavity preparation is the most potent and *only one* for *intelligent* men to take into consideration in *discussing any theory relating to the care and salvation of human teeth*. Scientific men recognize this as one of the fundamental principles and the *advance and progress* of dentistry depends wholly upon the practical application of this theory."

Is it, let me ask, really so that "*scientific men*" recognize this as one of the fundamental principles and that the *advance and progress of dentistry* depends wholly upon the practical application of the "extension for prevention" theory? I charge unhesitatingly that this statement is not only misleading but that it is wholly without warrant.

I assume that the prime object of dentistry is that of benefit

to the community; commercial gain to the operator should be matter of secondary consideration. I shall therefore continue the free and independent discussion of prophylaxis and other matters, assured that in the end truth will prevail. However wide the chasm between theorist and clinician in the matter of oral prophylaxis, they must ultimately coalesce in the discussion as well as the practice of this beneficent scheme, as a system of dental uplift. The trivialities and false theories of present dentistry must give place to better theories and more important subjects. Present methods, wherein mechanical repair waits for decay and disease, must surely give place to rational prevention measures.

The real possessions of dentistry reach to the care of the important organs in the very gateway to the human system, and yet dentistry itself has so circumscribed and limited its own field that, in the past and even now, it considers chiefly, I had almost said it considers only, the one disease—caries in the crowns of teeth—and he who most adroitly deals with this condition, is generally most lauded. Dentistry should, and eventually will, become the consultant and ally of general medicine respecting mouth conditions. It will afford diagnosis and treatment in many cases of throat and lung infection, tonsillitis, troubles in the digestive tract, nerve centres, kidneys and skin. A true forward movement will not be seen until educational efforts shall reach beyond present limitations—that of mechanical repair of diseased teeth.

A blunt, but perhaps true statement was made not long ago by Dr. Talbot, to the effect that "Dentists are not readers." A partial excuse for this may be found in the fact that close application in dental practise is not conducive to investigation and study in any direction. We accept this as a reason why we cannot as dentists boast of a more valuable and scientific literature. Confined to the exacting duties of practise, the dentist becomes practically disqualified for exhaustive scientific investigation. Few men have the strength, even if they have the inclination, to engage in unrequited literary work which must be done after the office labors of the day. Hence the more gifted writers are not from the ranks of the experienced, practical men of the profession. Dental magazine editors and writers, whilst sometimes expert with the pen, are almost universally lacking in experience and observation in actual dental practises. This pertains not only to the matter in hand, but it pertains to all matters relating to dentistry. Much of our dental literature is like the water in which Dr. Truman says we, as a profession, are floating. It is unsatisfactory; it is "shallow." Text books contain much that is trivial and misleading, much that is positively harmful.

"Oral Prophylaxis" has by no means escaped the theorists' ill considered and undigested attempts at elucidation. Men have pre-

sumed both to talk and write upon this subject without any true appreciation or misunderstanding of its meaning.

That there may be no confusion of terms, no misunderstanding of meanings in this paper, allow me here to define and differentiate Oral Prophylaxis. The true meaning of prophylaxis is the warding off or prevention of pathologic or diseased states in organs and tissues through surgical rather than medical means. Prophylaxis has been and is confounded with *prophylactic*, and these terms are commonly, but improperly used interchangeably by speakers and writers. Prophylaxis is also used as a synonym for asperis, oral hygiene, oral massage—if there be such a thing—or whatever is supposed to ward off disease in the mouth and teeth. This use of prophylaxis is misleading and unwarranted.

In defining the terms prophylactic and prophylaxis we would emphasize the fact that prophylactic more generally relates to therapeutic *remedies*; remedies that may be administered as preventatives of disease. Prophylaxis relates to preventive *treatment*. Although the term prophylaxis was not used in dentistry prior to the first article on this subject, read before the north-eastern Dental Society at Hartford, Conn., in October, 1898, and published in the International Dental Journal, January, 1899, under the title "Prophylaxis in Dentistry," the dictionaries—Webster, Worcester and the Standard, then, as now, all pointed to the signification as here given.

Being the first to use the term in dentistry, we may without undue liberty apply its definition. Prophylaxis is properly defined as a treatment involving surgical manipulation, in distinction to treatment by systemic medication or therapy. Hence, oral prophylaxis is a surgical treatment of the mouth and teeth in contradistinction to local or general medication, or the use of a germicide or any local treatment.

The interdependence of medicine and dentistry will in the near future be better understood by medicine; but the recognition will not come through the mechanical restoration of decayed and broken down tooth structure however skilfully such work may be done by individual dentists; it will come through the demonstration by dentistry that it controls the way of approach to, as well as the treatment of, certain general diseases in the presence of which medicine to-day stands as it has always stood practically helpless. In illustration of this allow me to introduce here one of the most interesting cases connected with my practice. Some time ago a lady of most dejected aspect presented, recommended, as she said, by Doctor D., one of the most widely known practitioners of medicine in our city.

The history of the case is this:—

The lady was an American, just returned from a residence of about two years in Rome. The ship's surgeon to whom she applied on the return voyage was so injudicious as to say to her that

she was suffering from cancer of the mouth; this of course greatly intensified her mental anxiety. Immediately upon landing she consulted one of the most prominent physicians in our city, who gave her very little comfort when he said, he could not say that her trouble was not cancerous until after a few days' treatment.

I cannot follow the lady in her visits to the eight physicians and dentists whom she consulted, none of whom offered her any relief or gave the semblance of a diagnosis. Every dentist declared her trouble to be a case for the physician, and not a condition to be at all considered by a dentist.

Examination revealed the following:—

Swollen and greatly discolored gum tissue over the whole of the incisal region of the upper jaw, beginning with the left lateral tooth and extending over the right cuspid; the gum tissue of this region was swollen and tumified, presenting an engorged mass of dark blue color, so elongated as to cover about one-half of the crowns of the front teeth. The lips were swollen and presented the appearance of a mild alveolar abscess. Along the marginal gum tissue of the entire lower jaw was a line of bright red color as of active inflammation, but without any considerable swelling. Looking further into the mouth, the tonsils were swollen to probably twice their normal size; the tongue was furred with a greenish yellow coating, parts of it about the thickness of thin blotting paper; a deep fissure extended from the base to the tip of the tongue. In the right sub-maxillary gland I found three nodules, one as large perhaps as an ordinary pea; there were nodules in the left gland not as large, but still distinctly marked. Extending over the arms and chest were irregular patches of dark pigment quite like the eruption of measles without the concentric character of that eruption. There was no fever, but great mental anxiety and nervous irritability.

The lady would sit by the quarter hour holding the upper lip off from the swollen gum tissue, "to let it cool off," as she said. The right upper central tooth was discolored to such an extent that I was unable to decide whether the pulp was devitalized or not, until I removed the remains of an approximal filling and found the pulp alive.

Now, gentlemen, what would have been your diagnosis in this case? The medical profession had given none, neither had it afforded any encouragement. Dentistry stood with folded hands in its presence, with no word of suggestion.

Instrumental examination satisfied me that the local expression as well as this whole train of constitutional disturbance—the tonsilitis, the nodular glands, the skin pigment, the extreme nervousness, the furred tongue, was due to the *ingestion* of toxins supplied from the general septic conditions of the mouth, especially that of the swollen and pyemic gum tissue.

The treatment consisted in placing all the teeth and the

whole mouth in an aseptic condition, first, relieving the teeth of external deposits, on none of which were masses of solid tartar, but what was far worse, an accumulation of decomposed mucoid, viscid matter persistently excreted and inevitably held by the swollen gums in contact with the tissues where the greatest inflammation existed. This muco-purulent matter was found not only on the front teeth, but on all the teeth.

I saw this lady every day for two weeks, giving her each day the ordinary prophylaxis treatment. At each sitting I made free application of phenol sodique to the gums. I also gave her a prescription of zhongiva as a rinse for the mouth to be used four or five times a day. To relieve the tonsilitis douches of phenol sodique were given each day, and the tongue was thoroughly mopped with the same preparation. For this purpose I employed wads of Japanese absorbent paper saturated in the medicament. I also applied tincture of iodine to the swollen, discolored gum tissue at every sitting, with a view to restoration of tonicity in the capillaries.

The only constitutional treatment was an aperient to insure free movement of the bowels. I purposely avoided the use of anything that would be called "constitutional medication," that it might be made plain to the medical as well as to the dental profession, two of whom had suggested "specific" treatment, that this most serious case was of local origin and demanded local dental treatment alone.

In less than two months from the time of instituting treatment all irritation has been removed. I had restored to normal the ragged, irritating cavity margins, by placing the teeth in perfect condition with fillings and crowns. The swollen and discolored gums had returned to normal, having a beautiful pink color with restored festoons, and striations; the tonsils were reduced to normal, the nodules in the sub-maxillary gland were taken up as was the pigment in the skin. All nervous strain had disappeared and the mental condition of the patient was that of calmness and confidence.

The restoration of the mouth conditions was perfect, and the lady on leaving my office, about October 25th, said, "Dr. Smith, I consider myself perfectly well."

This, gentlemen, is perhaps the greatest achievement which I can record to the benefits of the oral prophylaxis treatment.

If time would permit, I might recite to you many cases of complete restoration and cure of alveolar pyorrhea and astomatitis. I close with the record of one other unusual case.

Some two and a half years ago a lady presented from a physician, a stomach specialist connected with one of our Universities. He sent a note saying that the lady was under his treatment for a disordered condition of the stomach and he desired her to have some artificial teeth to enable her to masticate better.

An examination of this case disclosed a fairly good set of

teeth, upper and lower, but with the pyorrheatic condition about a number of them; there had been so-called dental operations, loose teeth attached to sound ones, an apology for a piece of bridge work, rendering comfortable mastication impossible, and other dental operations which placed her mouth in a most uncomfortable and unsavory condition. To me it was not a matter of wonder that the lady was suffering from stomach trouble and lack of assimilation, as it was impossible for her to masticate with any comfort, and her mouth was never free from pus and the toxins associated with pyorrheatic teeth.

Before commencing operations I replied to the physician that I found the lady's mouth in a very serious condition, but not demanding more teeth. What she needed was relief from pyorrhea and to have her mouth placed in such condition as to make mastication *with the teeth she then had* not only possible but comfortable.

He replied that he would "be glad to have her mouth in a healthy condition, of course, but *he thought* she must have more teeth for the better mastication of food;" this, however, he suggested "could be done later."

My first operation for the lady was by no means to give her "more teeth," but to relieve her of a piece of so called bridge work as well as of some natural teeth which were so loose as to preclude the possibility of restoration and were wholly preventing comfortable mastication. I discouraged all suggestions respecting artificial teeth and directed my efforts to restore to a useable condition the teeth she had. When she was able to masticate her food with comfort, which she could do in less than a week, there was no further complaint that she had not teeth "sufficient for mastication."

I have kept up the prophylaxis treatment for this lady regularly from the first, with the result that her mouth conditions are completely restored; pyorrhea has been eradicated and to-day after two years' treatment, there is entire relief from her stomach troubles and her general health is fully restored.

Enlightened, intelligent dentistry will yet supply the missing link in the medical treatment of tonsilitis, many throat and stomach troubles, indigestion, gastro-intestinal disorders, diabetes, and possibly assist in the treatment of epilepsy and cancer. In many cases these troubles are undoubtedly the direct results of pyemic states of the human mouth due to long standing septic conditions of the natural teeth.

The mouth with its large extent of dentate surface, frequently containing square inches, equal to that of an ordinary breakfast plate, becomes infested and infected with all manner of bacterial formations decomposing particles of food, stagnant, inspissated, septic matter from saliva, mucus and sputum, not infrequently with pus from irritated and inflamed gums, gaseous emanations from decaying teeth and putrescent pulps, salivary

calculus (tartar), and the chemical toxins from the decomposition and the commingling of mouth secretions and bacterial growths, all maintained at the high normal mouth temperature of 96.6 degrees F. Whilst this may seem a formidable array respecting infection in the mouth, it is not an over statement; it rather fails to present sources of infection, and causes of decay inseparably connected with untreated teeth; and, incredible as it may appear, these states are found not in the lower classes only, but they are found in ordinary mouth conditions in the high as well as in the low born; in the fastidious and the boor; and yet medicine with all its acumen has never investigated or taken cognizance of these dangerous conditions.

Extract from Greensburg paper:—

“Greensburg, Pa., February 22nd, Dr. Charles C. Burhenn, a leading physician of Jeanette, died yesterday from blood poisoning.

“Several days ago while attending a child about ten years old, who had contracted diphtheria, the physician placed his finger in the boy's mouth. The little patient brought his teeth down on the doctor's finger, cutting the flesh and bringing blood. In a few hours symptoms of blood poisoning developed and the physician became very ill. Special physicians were hurried from Pittsburgh, but the poison from the first seemed to have taken hold of the entire system, and in his weakened condition pneumonia set in, making the case hopeless. Dr. Burhenn was 40 years of age and was a graduate of the Western Pennsylvania Medical School.”

If the above extract is a record of facts, as it seems to be, it points very clearly to the virulent infection found on teeth in certain mouths, especially in children, and strongly emphasizes the necessity of the oral prophylaxis treatment for the young. No recognition has ever been made of the fact, even by dentistry, that unsanitized teeth, that is teeth untreated by the oral prophylaxis methods are on their surfaces virulently infectious.

Why do the great majority of the medical profession look upon dentistry as first and chiefly the work of filling decayed teeth? Is it not because our standing among the professions and in the community is gauged largely by the limited view which dentistry takes of itself? It is well known that in every conflict with medicine or surgery, even where purely dental matters only are at stake, the medical opinion is paramount. There is practically no finality in a dentist's diagnosis or decision, and yet the real possessions of dentistry embrace by right the whole of the oral cavity—the very vestibule of the human system. That dentistry has a mission peculiarly its own, a mission far higher and more helpful than merely dealing with decayed teeth, seems as yet not to have possessed those in control of our educational institutions. With them as with the rank and file it is mechanics and mechanism from the beginning of the so-called course of study to the very end of it. And this not in one college only, but it is the dominant practise in all the colleges.

Let me interpolate here that, within the last two years, four dental colleges with us have recognized in a degree the importance of mouth conditions and a chair of Oral Prophylaxis has been established in each.

The system of Oral Prophylaxis as instituted and recommended by the author, has for its aim and object not only freeing of the oral cavity from conditions that cause tooth decay, which conditions have become practically universal, but it has as the higher object the eradication of infection from the mouth, the conservation of human health and the prolongation of life.

Whether conscious of it or not, every one with natural teeth is a sufferer from mouth infection; some it is true to a much greater extent than others—the civilized more than the savage. The benefits accruing to the mouth and teeth, and thence to the general health through a consistent oral prophylaxis treatment, are very positive and plainly to be traced. In all stations and conditions where the treatment has been instituted it has demonstrated its marked sufficiency; it has also demonstrated that it is a system reasonably practical.

That theories might be verified before giving publicity to this treatment and its benefits, about four years was given to experimentation upon subjects who were under full control. The results were so uniformly satisfactory that in the beginning of the fifth year the matter was brought to the notice of the profession.

To understand the necessity for this treatment, we should understand the diseases and pathologic states heretofore unrecognized that have their origin in the bacterial infection on and about the teeth. It must also be recognized that states of the mouth and teeth, which give rise to the infection found on teeth are the direct cause of tooth decay; they are also the direct cause of all pyorrheatic conditions of the mouth and teeth.

Calcific deposits are constantly occurring and recurring, and not less the more immediately hurtful acidulated bacterial accumulations; and, more dangerous still, the nocturnal mucus appears to cement mouth debris, mucoid secretions, decomposing food particles, and other septic matter to the teeth; and all this is kept constantly at the high normal temperature of the mouth, 98.6 degrees F. Thus there is furnished by these neglected states of the mouth a most favorable media and most favoring conditions for the proliferation of germs, the fostering of systemic disease, the induction of mouth pyorrhea and caries of the teeth. Whenever the true significance of natural teeth conditions in their relations to caries and systemic infection shall be taught and understood the importance and the usefulness of dentistry, and not less the dignity and standing of the dentist will be enhanced a hundred fold.

I cannot better describe the technique of the Oral Prophylaxis treatment than as follows:—

The treatment consists of enforced radical and systematic change of environment of the teeth, and perfect sanitation for all organs of the mouth. Experience having demonstrated that the most careful and painstaking amongst patients are unable, with the agents commonly employed—as the tooth-brush and dentifrice, tooth pick and dental floss, soaps, so-called germicidal washes, or other agencies—to effect this end, the plan of forcible, frequently renewed sanitation by an experienced operator has been found indispensable. In detail, oral prophylaxis consists of most careful and complete removal of all concretions, calcic deposits, semisolids, bacterial plaques, and inspissated secretions and excretions which gather on the surface of the teeth, between them, or at the gum margins; this operation should be immediately followed by thorough polishing of all tooth surfaces *by hand methods* (*power polishers should never be used*) not alone the more exposed labial and buccal surfaces, but the lingual, palatal, and proximal surfaces as well, using for this purpose orange-wood points in suitable holders, charged with finely ground pumice-stone as a polishing material. Treated in this manner the teeth are placed in the most favorable condition to prevent and repel septic accumulations and deposits, and not less to aid all efforts of the patient in the direction of cleanliness and sanitation.

In every instance in which this treatment has been instituted for the deciduous teeth, and in many cases of adults, there has been complete immunity from decay and the teeth have generally shown a marked change for the better in structural composition. Alveolar development in children has apparently been stimulated and increased to meet the requirements of the erupting teeth. The unnatural, often extreme, sensitiveness of the gums, which is always attended with congestion, purple color and marked tendency to bleed, has in every instance been completely corrected and there has been quick return to the normal low-grade sensitivity and complete restoration of the natural pink gum color, having typical striations and regular festoons. Under the stimulus of a true prophylaxis treatment, the tissues of the teeth, especially the dentin and enamel, apparently begin a change for the better. This is probably due to the stimulation of the vital forces of the pulp resulting from the treatment. This change is noticed specially in the greatly improved color and general appearance of the teeth; dull, opaque tooth-substance, often loaded with an offensive “old ivory” pigment, is transformed into clear, transparent tooth tissue, the teeth themselves assuming the appearance of living organs, each having an impressive individuality.

For thirteen years the revelations and the benefits of this treatment have been to me a constant source of surprise and delight; and with ever-increasing emphasis it is demonstrating the necessity for its adoption in all mouths having natural teeth. It seems unfortunate that so very few operators have any real in-

formation in regard to it. In illustration of this, permit me to say, I was once asked by the Committee of Arrangements having charge of the meeting at which I was to speak, if I desired "compressed air" for my clinic.

At the close of the paper Dr. Smith gave a clinical lecture before the members present illustrating the method of operating, exhibiting the instrument best adapted for the work, and explaining the application of the remedies used, consisting of phenol sodique, zinc chlorid, concentrated zinc iodide, and a preparation for the patient, called Zhongiva.

DR. THORNTON'S DISCUSSION.

Some reference was made to the standards being established at the present time in our Dental College. I have visited a good many of the dental colleges to the south of the international line, and for nine years I have been in connection with the Royal College of Dental Surgeons of Ontario, and I want to say that the standard we try to establish with our students here is this, that their business in life is to preserve the natural organs of their patients. We try to teach them that they are being paid, not for the material used, not even for the time they spend, but for the services which they render to their patients. I believe that that standard is gradually being worked out through all dentistry on this North American continent. Some reference was made to dentists as glorified mechanics, that we spend all our time with mechanical restorations, and thank the good Lord, that is true, for we are dealing with conditions. Dentistry has been an evolution, and until we arrive at some basis upon which we may stand firmly in the way of preventive treatment our business is to attend to conditions as they are presented, and to make our patients as comfortable as possible.

Dr. Thornton closed with a eulogistic reference to Dr. Black, the Black Clubs, the late Dr. Miller and others who have advanced our methods of practise.

Dr. Lowe: Mr. President and Gentlemen, the subject of oral prophylaxis was so ably placed before you for consideration to-day that I hardly feel disposed to occupy your time. I know that the gentleman who was appointed to open the discussion is in the building and will be here directly. I agree with the essayist of this morning entirely so far as his statement of the importance, the very great importance of the practice of prophylaxis is concerned. I cannot altogether agree with Dr. Smith regarding the unimportance of many other things that pertain to the practice of dentistry—the comparative unimportance. Now, if I have a word to add, it is that in my estimation the practice has not been altogether confined to manipulative methods. I even go to that extreme that I believe we can improve the environment of the teeth by insomatic medication. Dr. Smith intimated that it would have been well to have said that

acid was the cause of superficial enamel decay rather than bacteria. I disagree with him on that point, if I understood his statement correctly in this regard, that bacteria are responsible for that acid which does the greatest harm; and I believe that the human mouth might be infected to double the infection which is in existence there if it was not for the fact that bacteria under certain provocation and probably for their own preservation have formed a glue-like substance which Dr. Black termed the gelatinoid plaque. I believe that glued-on bacteria from whatever source is the prime cause of superficial enamel decay. Now, the most important thing to-day is to glue them off, and Dr. Smith is the first man who ever, during my day and generation, attempted rationally to perform this operation. His methods, as we learned a number of years ago in New York State, are such that the result, to quote from Dr. Kirk, the Dean of the Dental Department of the University of Pennsylvania, is truly marvelous.

Now we have great trouble in New York State to persuade practitioners to engage in prophylaxis operations. They seem to think because they have done pretty well with the dental engine and the revolving burr, with rubber cups or discs or brushes, that they haven't any occasion to learn a new way, and they seem to entertain the idea that you must give up a very considerably greater amount of time to accomplish things if you resort to the method Dr. Smith advocates. The first operation I ever saw Dr. Smith perform was for a gentleman in New York. On that occasion he had neglected to come in promptly at the end of the month, and notwithstanding that the man had been neglectful to the extent of two weeks or more, I found Dr. Smith was able to put those teeth in perfect condition again, and my recollection of the time consumed was in the neighborhood of twenty minutes. Now I am not nearly so skilful as Dr. Smith, but I have no difficulty whatever in seeing two patients—providing, of course, they are patients who are in the habit of coming as they ought to—every hour, and sometimes I see more than two patients an hour in those mouths where the teeth are all right.

Dr. McColl: I personally do not believe that it is necessary that general practitioners should turn this practice over to a specialist. Personally, I am very heartily in accord with Dr. Smith. I myself am following oral prophylaxis as a specialty, thus putting myself in opposition to you. I have talked with a good many men about prophylaxis, and the general opinion seems to be voiced about in this manner: "That is all right, but you are not doing anything else, but I am busy, I am in general practice, and I can't take the time for it; I have got to do the work that comes to me to do." Now I want to say to you that I believe you can take the time for it, and I believe that you should take the time for it, not necessarily as a specialty. I do not believe that every one of you can get the results Dr. Smith gets without practising it to the exclusion of

other branches of dentistry, or very nearly so, but I do believe every one of you will take up the ideas which have been presented to you by Dr. Smith and will apply them—don't talk about them, don't say, "I don't think I ought to do this," and, "I don't think there is any use of doing that"—apply them; go to work and do it: and if you will do that I am quite sure you will find you are keeping the mouths of your patients in much better condition than you are now, and that your patients will have, if not an entire cessation of decay, certainly less, and most assuredly less pyorrhea. I believe it is easier, from my own experience, to prevent pyorrhea than decay.

I have made use of a tartar solvent, and I am going to tell you how I use it. I do not believe in curing pyorrhea by the use of any tartar solvent or any medicament, or any instrument. If you are going to cure pyorrhea you have got to scale the roots of the teeth, and get the root surfaces smooth, and if you do that it doesn't matter much what instrument or dressing you use, you will get the result. What I use tartar solvent for is in relief of pain. That will seem somewhat paradoxical to you, any of you who have tried it, using the directions of Dr. Head, but if you will take a case in which the teeth and gums are intensely painful, in which the pain is almost that of an abscess, and apply tartar solvent under the gums, let it run under the gum by capillary attraction, just a little of it along each tooth, and let it stay there for not more than half or three-quarters of a minute at the outside, you will find it will relieve the soreness more quickly and effectively than any agent I have been able to find. You will also find it will act as a stimulant to the gum tissue. I don't use a great deal of it; four or five teeth can be handled very readily at a time, and by using proper precautions avoid burning.

The prophylaxis method I consider from my study of it to be a reproduction of the natural functions of the teeth. We know that the teeth were evolved as a special tissue for the purpose of masticating food, and we know that when teeth were evolved in the early stages of the human race that the food with which they had to contend was tough, hardened, and uncooked, and required a very considerable amount of mastication. That meant that the food brought to bear a great deal of friction on the tooth surfaces and also on the gums, and in my estimation that is the reason why this method of treatment is so markedly beneficial, simply because it reproduces artificially the friction which the teeth should be subjected to in the mastication of food, for which they were evolved.

I remember reading in a copy of the Dental Cosmos dated about the sixties, I think, an article by an observer who told us very clearly that the teeth of the succeeding generations were going to become poorer and poorer, and finally disappear entirely unless we did something to prevent it. This is the field of oral prophylaxis.

We have got to work for the future as well as the present, and our slogan has got to be prevention. We have gotten to the point where we can fill cavities pretty well. With all we can do in a reparative way, things are getting away from us, we have got to prevent trouble or we are not living up to the proper conception of our profession.

In my clinic this afternoon I had occasion to refer to the mouth wash which I use, the formula for which was given to me by Dr. Grace Rogers, of Detroit, who is a prophylaxis specialist, and while I do not believe this remedy is the same as the remedy Dr. Smith recommended to you this morning, I can state to you from experience that it is a very excellent astringent mouth wash to use in connection with prophylaxis treatment and in connection with pyorrhea treatment. Don't think I am curing pyorrhea by the use of this mouth wash. "Tincture of myrrh, 1 drachm; oil of wintergreen, $1\frac{1}{4}$ drachms; alcohol, $2\frac{1}{2}$ ounces; water, $1\frac{1}{2}$ ounces; zinc chloride, 8 grains." That makes about four ounces. This is a zinc chloride preparation, and is used as an astringent and as a stimulant. When I make a prophylaxis treatment I generally follow it up by applying this in full strength. I give the patients a small bottle also and direct them to use it by pouring a few drops in a little water, so that it makes the water a little bit cloudy. Being an alcoholic solution, it will precipitate a little in the water. This should never be used strong enough to burn the tongue when taken into the mouth as a mouth wash.

Dr. Caesar: Do you use it with an atomizer?

Dr. McColl: It can also be used in the spray bottle with compressed air.

It is rather hard for me to speak of this work in a way in which I feel that it will be taken up earnestly by the general practitioner. I find it is hard for the man who has not done it to get hold of it, to get anything out of it. He sees a clinic, and he sees teeth being scaled, and he has seen that before, and he sees the orangewood stick being manipulated, and he may not have seen that before, but it looks very simple. It is hard for him to realize that the use of the orangewood stick in the hand should replace the use of a brush or rubber cup in the engine. It is hard for him to understand that hand work is really essential, and yet I am very sure that if any one of you will conscientiously take up the hand work and feel the surface on which you are working you will realize that you never before knew anything about the surfaces of the teeth when you were cleaning them by any material or instrument which you could use in the engine. You cannot polish with anything that you can use in the engine and get the surface polished properly without injuring the gum. You can do it with the orangewood stick and feel that you not only reach all of those places which you were before omitting to reach, but you can tell when you have polished the tooth that you are not going to wear away any tooth surface

which should be left there, and you are not going to leave any concretions, any deposit, or any mucous on that tooth surface which should be removed. I went into it myself on faith absolutely. I took up pyorrhea work on faith. The methods which I use I took up simply because I believed there was something in them, and when I came to actually do the work I found that there was. Now, get to work, gentlemen, get your orangewood sticks and use them; make up your wedge points with them and get to work and apply what Dr. Smith has told you, and I am sure that you will agree that it is something very wonderful indeed.

Dr. Sparks: If we are given to understand that it is merely the mechanical operation that is going to perform the cure, and, if so, why should this mechanical operation, this irritation, this agitation of the gum be continued time after time, month after month? We are led to suppose if a case of pyorrhea can be cured it can be cured at one sitting.

Dr. Bannerman: I would like to ask Dr. McColl how often he uses this mouth wash, astringosol?

Dr. McColl: During the treatment I recommend to my patients that they use that to rinse the mouth out with after brushing the teeth. The teeth should be brushed after every meal, which will make three times a day. After the treatment is finished, that is, in cases of pyorrhea, and the mouth is in a healthy condition I discontinue the use of astringosol. I do not believe an astringent should be used in the mouth when the gums are in a healthy condition, but during the treatment three times a day.

Dr. Garvin: It seems to me, in reply to what was said this morning, that if bridge work in the hands of the average dentist will only last three years, it is time the dental journals were devoting more time and not less to this very important subject. (Applause.) Further, in the discussion nothing has been said about the removal of cementum, which was also condemned this morning. I may say it seems to me that the work of Dr. Hartzell, of Minneapolis, should be thought of here, when he, in a scientific way, has shown that in a pyorrhea pocket there are certain branches or filaments of the dead pericemental membrane passing into the cementum of the tooth, and that the present condition, so to speak, still exists after a certain amount of deposit, or even after all of the deposit itself has been removed, and that it is advisable to remove the outer layer of cementum and leave a thoroughly polished surface. We do not expect the gum tissue to necessarily form a new attachment to that polished surface, but to get into very close contact with it, tightening over, so that an instrument can scarcely be passed up between the gum tissue and the root.

Dr. Smith: I really thought that I had presented something to the profession which might be construed as being new, but it seems from what has been said that I have not done anything new; that twenty-five years ago, long before I began with my work, this was

old. I have had to meet everywhere this same kind of slur which has been thrown upon this work that this man has seen fit to present before you. "Why, yes, we have cleaned teeth for years." That is the very first opposition I met. "We know all about this subject; we have cleaned teeth for years." But, I am very thankful to say that the impression is just beginning to dawn—the idea is just beginning to permeate the profession that there is something in this matter which they have never been able to see before. Dr. McColl could not have said anything better to you than when he said, "Gentlemen, you get at it." I am not disparaging Dr. Miller. I am not disparaging Dr. Black. But what I did say is what is true, that although these gentlemen have presented their theories, and things that we would not blot out of dental literature at all, and we honor them for it—although they have presented these theories they have not given you a remedy. They have not given to the profession a remedy, not one. They have not told you anything new as to the method of prevention of decay.

It is not the prevention of extension after a tooth has decayed that I condemn, that is not it; it is because we are giving our attention to these things without looking at anything else. That is the point I would condemn. I want you to understand I am not a specialist in dentistry; I am a dentist, and I glory in it. There is not an operation that belongs to dental science that I do not think I can do; I try at least, and I have the conceit to believe that I can do it as well as any specialist that exists. I have given my best energies, perhaps, to oral prophylaxis, knowing that is to be the great relief that is to be furnished by the dental profession for the suffering of humanity from the human mouth. We talk about decay, but that is nothing in comparison with what it is going to prevent of the ills that belong to the system which originate in the human mouth. Let me tell you one thing—it is a matter of record that during that enlistment for the Boer War at a station in England 11,000 men presented themselves for service in that war, and only 3,000 were accepted—only 3,000 men out of 11,000; 8,000 men out of 11,000 rejected as being unfit to defend the British domain. It was largely through mouth conditions that these men were rejected. If these subjects had been put under prophylaxis treatment at the time that they should have been there would have been a large part of them fit to go and defend your country. The British Government since then has appointed a commission for the purpose of investigating the physical decline of the British race. Mentally they stand at the very head. They are coming to see that the reason why they are on the decline is because of the mouth conditions, and they will never raise the British people out of the present attitude of decline until such time as they begin to attend to the mouth conditions. The British nation since about 600, since it emerged from barbarism into a nation, has never known anything about what it is to attend to the mouth. Until you come to

understand that mouth conditions are of first importance you will never raise the human race to a condition where it ought to be. Let me tell you another thing. In England, in the rural districts, they tell me that the people require about twenty-five pounds a year to live sort of respectably, to live like men, and the average wage is only about eighteen pounds. That does not give them a great deal for dentistry.

There is nothing at all that is intended to be secret about the preparation Zhongiva. Zinc chloride is the principal basis of the remedy which I use. I used it for pyorrhea long before I began to use it in connection with prophylaxis work. If the astrongosol which has been given us has an merit, and I rather think it has, it is due entirely to the zinc chloride and alcohol. The myrrh hasn't anything to do with it, and the oil of wintergreen is simply a substance to make it more pleasant in the mouth.

I am sure, from my experiments in the matter, that from 75 to 90 per cent. of all the decay that occurs in teeth can be prevented. There are absolutely no remedies which you can use to affect the acids or secretions in the mouth that cause decay. One gentleman said that there could be remedies taken into the digestive tract and into the stomach. It is an utter impossibility that anything of that kind should be discovered. You cannot control a mouth fluid which is constantly in the mouth any more than you can control the blood, not one bit, nor as readily as you can control what is in the blood, so that the only way in which you can influence the preservation of the teeth through the mouth is to keep those teeth perfectly clean, is to remove the conditions which cause the decay, and I have adopted the system of seeing my patients about once a month.

DENTAL FEE.

DR. WARREN C. OXNER, HALIFAX, N.S.

Read before the Nova Scotia Dental Association, July, 1910.

The subject of fees or remuneration for professional services rendered by the dental profession, is one which in my estimation does not receive sufficient attention or publicity. Dental magazines are filled with all other matters pertaining to our calling, and likewise convention programs. (This is as it should be), but in common with all other subjects, I should like to see this particular one receive the attention and discussion which it most certainly merits.

As a broad principle I think I am safe in assuming that our profession, as a whole, computes its charges from a wrong basis. The basis I refer to is that of mechanics. This is probably due

to the fact that our profession is young, and that dentistry originally grew out of mechanics, and in a large percentage of cases is still so regarded by the laity. Now it becomes our duty as professional men to teach the public differently. When we stop to consider the matter we all readily admit that a sharp line is drawn between mechanics and professionalism, but I don't believe that the distinction is sufficiently instilled into our own minds. The question naturally arises, and who is to blame for this? Where should we first be taught this difference? Surely when we receive our dental education, from our Alma Mater. Apropos of this subject I wish to quote from an article by Milton Graham, D.D.S., of Ottawa, Ont. He says:

"Did it ever occur to you that in your entire course of lectures during your college career, the subject of Fees was never once mentioned? For my part I attended four sessions at the Royal College, I heard excellent lectures on Medicine, Materia Medica, Therapeutics, Surgery, Anatomy, Dentistry, both operative and prosthetic. I was told how to keep a dental office clean and tidy, how to sterilize instruments, in fact everything that pertains to dentistry. How to treat my patients in a courteous and gentlemanly manner; yes, I may say I was taught, putting the whole course in a few words, 'to be a general slave to the public.' But in the whole four years I never once heard the subject of fees brought up for instruction, or how we were to be remunerated for such, I was going to say slavery, but I had better choose the more ethical and professional phrase, professional services." Gentlemen, is this not typical of our own experiences? In my opinion, where the root of the trouble lies, is within the College lecture room, and I firmly believe that a special lecturer on this subject, should be appointed in every dental college throughout the land.

Now, what should *form* the *basis* of our charges? Primarily time is our greatest asset, this should be modified by what skill we possess, and to a certain extent by the financial condition of the people for whom we render services, for we are brought into very intimate contact with our patients, and are therefore more or less capable of judging, and in the end our conscience will be the best guide, not only as to what we shall charge, but in our whole attitude towards them.

The argument has been used that some men accomplish much more work in a given time than others. This is true, but also this is where a man's conscience comes into play, for if he is true to himself, he will know whether to charge three or five dollars more or less per hour, *also* his skill is judged in the same way, for following this rule no man is so severe a critic of any service rendered, as the one who performs it. On the other hand there is not one amongst us who has not experienced a great feeling of satisfaction on receiving a good fee, knowing that he has given

valuable services for it. This then is the principle I contend for that of time. If our patients are taught that time is valuable, we will have less of that great nuisance in practice, broken appointments, for it is a matter of almost daily occurrence to have the telephone ring, (about the time a patient is due) and hear from the other end, "Miss so and so will be unable to keep her appointment to-day," or has happened in my own practice recently, have a patient ring up several days after an appointment should have been kept, and say: "Oh, Doctor, I am so sorry, but the morning I was to have come to you was 'Opening Day at the Milliners' and I forgot all about it." Instead of laughing it off, and saying "Oh, that's allright;" if such a patient absolutely knew that they would be charged for the time lost, I venture to think that it would be a great stimulant to the memory. In this connection an appointment card, bearing the name and date, and with instructions similar to the following should be used, "This time is reserved exclusively for you. Please give twenty-four hours notice, if you cannot keep the appointment, otherwise the time will be charged for on your account, at so much per hour." (Whatever a man values his time at.)

Again if your time was properly charged for, we would receive more remuneration for our services. How often do we hear a dentist say, "I have worked hard all day, but found at the end of the day I had little to show for it." Perhaps he has had a dozen or more patients in his office, changing dressings, polishing fillings, making examinations, &c., &c., not much perhaps for any one, but had he charged for the time, and it would be perfectly legitimate to do so, he would have accomplished a good day's work. Or again, we spend perhaps an hour in preparing a compound cavity in a molar, and inserting an amalgam filling, and if one has used a matrix and done the work properly, and at a subsequent sitting polished that filling, it would easily consume that much time, and for such filling, (according to the usual methods of charging) we ask our patient for more than a dollar, or a dollar and a half, he will think you are "doing him," and will not hesitate to tell you that Dr. so and so charges a dollar for amalgam fillings, and if we insist on collecting the fee, we probably lose that patient and his influence. Who will say that we have not accomplished a better result for that person than if we had put in a gold shell crown, and collected a fee of ten dollars, which would readily have been paid. We all have seen instances of this kind, when the fee was the main object in view. Incidentally if the proper fee were charged for a filling such as I have described, there would be much less abuse of above mentioned gold shell crown.

Again the value of time should be impressed on a patient when they ask for an estimation of how much certain work will cost. Personally I like to have some patients ask such a question.

But I do not believe in making a definite price for any piece of work. If you state a definite price, as I look upon it, it places a dentist in a very embarrassing position many times. When a definite price is mentioned for an individual piece of work, the dentist is very apt to mention a price, particularly if he is not overly busy, that is as low as the work can possibly be done with justice to all parties, provided that no unforeseen difficulties arise. If, however, some unforeseen condition does arise, and more time and work are required to finish a piece of work than we first anticipated, then we are placed in a position where we must do one of three things, we must charge a higher fee, or must do the work for the price named and as thoroughly as we had originally anticipated, and stand the loss ourselves, or we must slight the work in hand, thus doing an injury to the patient as well as to ourselves in the long run. Therefore I would say to everyone, if you must state a price, make it simply an approximate one, stating that the fee may be greater or less, depending upon the time consumed in accomplishing results desired.

Instances of all kinds might be cited why time should form the principal basis of our charges, but quite enough has been mentioned to demonstrate my point.

Just a few words on collections. The laxity of payment of dental bills is not the fault of the public, but the dentists themselves. As a whole, we have poor business principles. If we wait three or six months before rendering an account to a patient, it will probably be another six months before that bill is paid, but if we start an operation with certain arrangements in this respect, we will have far less trouble in collecting. A good method of conveying this information is the appointment card, which in addition to instruction already quoted, contains the following: Statements are issued on the last day of each month. Unless other arrangements have been agreed upon before operations have been commenced, payment will be expected promptly upon the presentation of each statement. Or one like this: Statements are mailed on the first day of each month for all services rendered prior to that time. The best business principles demand the prompt payment of all bills. We have adopted these principles, and earnestly solicit prompt attention to our statements.

To be sure, this will not solve all difficulties, but one's methods soon becomes known to his patients, and a system similar to this should assist greatly in this branch of practice. It is, however, gratifying to men interested in this phase of dentistry to know that many are adopting such methods, but it has not become universal by any means, and as we are all anxious to rise in the estimation of our respective communities, I believe there is no one thing we can do which will so elevate our profession, so cause it to take rank among other professional men, as to instill into the minds of our patients that we are not selling fillings and plates at

so much per, but that we possess time and skill, which are valuable assets to the public in the prolongation of health and comfort.

ETHYL CHLORIDE AS AN OBTUNDER IN SENSITIVE DENTINE.

DR W. H. H. BECKWITH, HALIFAX, N.S.

Read before the Nova Scotia Dental Association, July, 1910.

I have been using Chloride of Ethyl in my practice at least six years. I have found it not only a great aid to my patients, but most satisfactory to myself. It has helped along with many a hard case, so much so, that when looking back I do not see how I could have managed without it. I have used it on patients of all ages, young children as well as adults. Of course the great drawback to its use is, as is well-known, the intense cold it produces upon application, or rather, where it is first applied—but if the patient can once be shown that the pain decreases as the pain proceeds, that person is won over to its use. A patient with hyper sensitive dentine will submit to almost anything to be rid of the great pain given, when the engine is used, and although considerable is the discomfort experienced when the spray is first applied, yet as the spray is continued, it in most cases disappears and it is the preferable pain of the two even at the beginning. There is something definite about it, while the pain of excavation is uncertain, at least, so they explain it to me. Some do not seem to mind the freezing, I am sorry to have to admit that they are in the minority. However, 99 per cent. of my patients tell me they much prefer its use in dealing with a sensitive cavity.

I find its use much more effective with the incisors and bicus-pids, than with the molars. I account for this from the fact of so much larger surface having to be covered as well as their location being such that the spray cannot be directed as favorably. Still anterior cavities can be handled very well, and in fact an anterior cavity in any of the first molars is about as well looked after as any in those before mentioned. The generous nerve supply to the molars may also increase the difficulty; for all that I have used it with good results upon either upper or lower third molars and the patient has thought it considerable help.

This paper really describes my own experience with Ethyl Chloride. I will therefore outline my method of manipulation—I first explain to the patient that something can be applied to help them if they will submit to some discomfort when first applied, that it probably will produce intense cold at the start, but that will disappear in a short time. Perhaps my own confidence has some influence, at any rate, they tell me to use it. I then pick

out as many sharp burrs as I think necessary for the preparation of the cavity and place them so that they can be quickly handled. insert the saliva ejector, place a cotton roll between the cheek and the gum, if a lower tooth between the tongue and gum as well. The spraying is then commenced at the gingival margin until the characteristic whiteness is secured, then I allow some to slip into the cavity until the feeling of coldness has passed, then I begin excavating, which I do as quickly as possible using considerable strength. Before sensitiveness returns, I stop work, blow out my cavity with a chip blower and again spray. Of course the second application is not nearly so uncomfortable as the first, on account of the tooth still being frozen, in fact, if too long a time has not elapsed there is no pain whatever. I generally try to change burrs between applications, but always spray a little immediately after the engine is stopped. I continue in this way until the cavity is ready. I use Ethyl Chloride with or without the rubber dam, as the case may be, and have found especially with the incisors, that the rubber aids in effecting the desired result, on account of the parts being dry. When the rubber is used the skin about the mouth as well as the lips should be well smeared with glycerine in order to prevent burning. It is a great help with children when they will allow it to be used. Of course that is rather uncertain. We all know that any child from 5 to 10 years of age is a most uncertain quantity from a dental standpoint, yet if the child can be induced to have it once used, it wants it again.

I have found Ethyl Chloride invaluable in exposing pulps for Crown and Bridge work. With the incisors I first start with a dentate fissure burr at a point on the lingual surface directly under or over the pulp, break through the enamel then with a number 5 round burr, excavate until it is sensitive, then commence freezing and work towards the pulp. When nearly exposed I change to a number $\frac{1}{2}$ burr and go through. Have the cocaine ready so that before sensitiveness returns it may be pressed into the pulp. I have also found that the pangs of the separator can be lessened by spraying, directing the spray upon that part of the gum, upon which the instrument is pressing. I use it with good results in grinding teeth for shell crowns as well as placing a high ligature.

As I have said before, this paper is really a recital of my own experience, which I trust has interested you to some extent. I have come to look upon the use of Ethyl Chloride in my practice as indispensable. I must say I have met with some few cases where the use of it was not appreciated, and where it really did not appear to be of much or any benefit. I am thankful to say that such cases are away in the minority and I have come to look upon Ethyl Chloride as one of the most useful drugs in the office.

COMPARATIVE VALUES OF THE DIFFERENT SILICATE CEMENTS.

W. B. CAVANAGH, Cornwall.

Read before the Eastern Ontario Dental Association.

Since the introduction of plastic cements for filling cavities in the natural teeth all efforts of chemists were continuously directed towards the production of a durable preparation which would more or less resemble the natural organs in appearance. The initial efforts of utilizing silicate mixtures for this purpose were made many years ago, but, like many other first attempts, they were not an unqualified success. It was recognized that the silicate preparations possessed a degree of translucency which made them of inestimable value in certain cavities exposed to view. Its chief properties over other cements used as filling materials are: (a) Its extreme hardness; (b) its great resistance to the destructive action to the oral fluids; (c) Strength or resistance to wear; (d) its close resemblance to the natural enamel.

I shall now give the results of a few of the investigations made by chemists into the properties of silicate cements. Their investigations cover the properties known as: (1) Strength, or resistance to wear; (2) Adhesion; (3) Alteration in bulk, color or surface, and (4) Resistance to the oral fluids.

1. *Strength*.—In lbs. per sq. m.m. made with bars $4\frac{1}{2}$ m.m. sq.; fifteen tests. Average taken. Aschers, 1.17; Astral, 1.12; Harvadid, 0.95; Schoenbecks, 1.21.

2. *Adhesion*.—Average in lbs. Six tests made with same tooth. Natural teeth were taken and the crowns ground down level to full exposure of the dentine, the cements were mixed and built upon these teeth with a loop of wire embedded in the cement. After two days the hook of a spring-balance was inserted through the loop of wire and the number of lbs. was recorded when the cement broke away from the tooth. Aschers, 0.58 lbs.; Astral, 3.70 lbs.; Harvadid, 3.08 lbs.; Schoenbecks, 20.66 lbs.

Silicates adhere more to dentine than to enamel, and for this reason the practice of covering all dentine in a cavity with other materials, under silicate fillings, deprives the silicate of some of its adhesive property. It also impairs to some extent its translucency.

3. *Shrinkage*.—Out of the mouth. Six tests. Average loss for each, 100 grs. after standing three days. Aschers, 2.34 m.m.; Astral, 2.38 m.m.; Harvadid, 3.06 m.m.; Schoenbecks, 0.99 m.m.

4. *Loss of Weight*.—Out of mouth. Six tests for each 100 grs., three days after mixing. Aschers, 2.52 grs.; Astral, 1.70 grs.; Harva did, 2.36 grs.; Schoenbecks, 0.89 grs.

5. Variations in "bulk" and weight under mouth conditions: Variations in bulk is stated in m.m. per 100 grs. weight.

Variations in weight is stated in grs. per 100 grs., one hour

after mixing. Material varnished and placed in warm water for three days and then removed.

	Aschers.	Astral.	Harvardid.	Schoenbecks.
Bulk	—0.55	—0.75	—0.78	+0.29
Weight	+0.50	+0.60	+0.58	+2.19

It is difficult to account for the increase in weight in each case unless the coating of varnish fails to be entirely impervious to moisture. That varnishing minimizes the absorption of water is proved by making the same tests without varnishing the mixture. This test also shows that shrinkage is governed by loss of weight.

The foregoing shows that in the mouth Aschers, Astral and Harvardid shows a slight shrinkage, while Schoenbecks shows an expansion as it is a great absorbent of water, but this can be greatly reduced by the use of a good varnish.

By further investigations into the action of various liquids on these cements, the following deductions were made: Water solution of sodium chloride, sodium carbonate, alum, alcohol and ether are about equally absorbed by each cement. Astral absorbs the least; Schoenbecks the most, which is its greatest defect.

Alum has a great effect upon the cements, producing deep fissures and cracks; the other solutions do not appear to effect the surfaces excepting the fact that any watery solution coming in contact with these cements in the early stages of crystallization decorolizes the surface and reduces it to a loose, light powder. For that reason it is detrimental to wash silicate fillings with alcohol before coating with varnish.

A mineral acid, such as sulphuric, even a weak solution, has a very destructive action upon these cements, especially Aschers, which mixes much coarser than the others, and probably for this reason is more readily acted upon. Diluted sulphuric in two days reduces Aschers cement 50 per cent. in weight. Astral cement seems to resist such an acid the best.

Carbolic tooth powder used where any bleeding of the gums occurs will produce, in as short a period as three months, very dark staining of silicate cement fillings. This was recorded from a case where the fillings had remained perfect for eighteen months previous to the use of this powder.

As the exclusion of external moisture during the period of setting of silicate cements seemed to be of extreme importance I record the facts of "dry heat" during the setting. By the application of dry heat to 100 deg. F. setting takes place in one-sixth of the usual time, but translucency is deteriorated, especially with Aschers and Harvardid. Dry heat will also accentuate any shrinkage.

The rationale of this experiment is that internal moisture (water of crystalization) is requisite for the best results to be obtained, and that it is detrimental to success to use dry heat, as it has been shown to permit saliva or external moisture to come into

contact with silicates during the period of setting exposure to air. does not appear to effect the translucency to any extent.

Summary of the various points concerning each cement:

(a) Period of setting is in the following order—Aschers, Harvardid, Astral, Schoenbecks.

(b) Plasticity and adhesion—Schoenbecks, Astral, Harvardid, Aschers.

(c) Alterations in bulk, color, and resistance to oral fluids after proper protection during the setting period:

(1) Bulk.—Schoenbecks, Aschers, Harvardid, Astral.

(2) Resistance of fluids of mouth.—Astral first, others about equal.

(3) Colorer.—All good with exception of chalky white spots in Aschers, probably due to the coarseness of the powder.

(4) Translucency and surface gloss is very good with Astral and Schoenbecks, but not so good with Aschers and Harvardid.

ESSENTIALS FOR SUCCESS WITH SILICATE FILLINGS.

Mixing slab, spatula, and instruments to be scrupulously clean and kept for this use exclusively. They should be of agate.

Mixing the cement should be done as quickly as possible and at first by "stirring" continuously more and more powder into the liquid, then complete the process by spatulating further powder into the liquid, spreading it over as small a surface as possible. This should be continued until the previous greasy surface of the cement disappears; it should now be the consistency of soft butter. Now mould the mass upon the edge of the slab and condense the cement with the spatula until the greasy surface disappears.

The cement should be quickly inserted in the tooth and small portions, attending specially to any cervical margin, groove or undercut. All excess of cement should be avoided; obtain shape and contour before the cement begins to set. This gives natural setting, gloss and translucency. Avoid any friction after cement has begun to set as this produces heat and causes loss of water of crystallization, which spoils the translucency of the cement. Patting the surface of the cement with agate points smeared with cocoa butter brings out the best results in gloss and translucency. Use a celluloid strip matrix smeared with cocoa butter to press the cement firmly into the cavity, cutting away from margin of cavity all excess. When cement has set sufficiently apply four coats of thin varnish, giving each ample time to dry and harden.

It is necessary to take great care with the liquid supplied with silicate cements. Avoid any contamination of the liquid, and as this deteriorates we should only obtain small supplies at a time, and I believe it is better to use but half the liquid in a bottle. Before using always stir the contents of the bottle.

We have not yet obtained possession of a plastic filling which is in all respects perfect, and if by pointing out the good as well as the bad features of the preparations that we use we can encour-

age manufacturers to further improve them, we may eventually have placed in our hands a filling material to our entire satisfaction.

DEVITALIZATION AND MANAGEMENT OF PULPS AND PULP CANALS OF DECIDUOUS TEETH.

BY A. E. WEBSTER, M.D., D.D.S., L.D.S., TORONTO.

Gradually the dental profession and the public are giving up the idea that the pain that children suffer from diseases of the deciduous teeth are less severe than those of the teeth in adult life. More and more we are being forced to believe that the deciduous teeth are as important to the present needs of the child as are the permanent teeth to the adult. In addition to this, we believe the permanent teeth and the health of the adult depend largely upon the condition of the temporary teeth. If there is any period of life in which comfort, freedom from disease and full power of mastication should exist, it is during childhood. Discomfort, pain, disease, and lack of nourishment are misfortunes at any time, but are real calamities in childhood.

The pulps of the deciduous teeth are larger relative to the size of the teeth than those of the permanent teeth. The teeth being small and the pulps large, comparatively small cavities cause exposures.

The management of an exposure of the pulp of a deciduous tooth should be the same as that of an exposure in a permanent tooth. The only modification is that which should be made because of the age of the patient and the comfort of dealing with him in the future. It is good practice to remove the decay from the cavity of a paining tooth and cover the exposure with oxide of zinc and oil of cloves, and over this put oxyphosphate, if the devitalization and the removal of the pulp would cause exhaustion or frighten the little patient so that he would not have dental operations in the future. A pulp covered as described may remain comfortable for months when it may be opened and removed. Each visit without pain or distress, and each year of additional age makes children easier to deal with. If the child is accustomed to having dental operations, there is no reason why exposed or paining pulps of the deciduous teeth should not be devitalized. Aresnical applications are less painful and taxing on the endurance of a child than any other method. In general, small quantities and shorter time should be the rule. The only period of danger from arsenical applications to the pulps of deciduous teeth is previous to the complete closure of the apex, and after absorption of the root has taken place to make way for the permanent. It would be unwise to apply arsenic to the pulp of a tem-

porary molar before the completion of the third year, or after the eighth or ninth year. Likewise, arsenic should not be applied to the pulp of a central at six or seven years of age. It is rare that a pulp needs to be devitalized during the period when it is unwise to use arsenic. As there is no absolute rule when a tooth will erupt, or have a closed apex, the condition of development of the child and the other teeth must help in arriving at a conclusion.

Pressure anaesthesia is generally unsatisfactory for devitalizing the pulps of deciduous teeth. The rubber is too disturbing to a child, and the dangers of intoxication for want of control are too great to be undertaken without it. Partially dead pulps may be completely desensitized with phenol, either by pressure or by pumping it into the canal with a broach. If a child has been suffering from an abscess of the pulp or ulceration of the pulp, it is well to make a free opening and insert a dressing of oil of cloves, containing a very small quantity of arsenic for twenty four or forty-eight hours, when the pulp may be removed and the root filled. The root canals of the deciduous teeth being small, it is almost impossible to completely remove the pulp from many of them; in such cases it is desirable to use an antiseptic root canal filling. Nothing should be done in the management of deciduous teeth which will cause the death of the cementum or allow an alveolar abscess to occur, because then the root of the deciduous tooth will not be absorbed as the permanent tooth advances. The erupting tooth will be compelled to force itself through to one side of the temporary root. Many irregularities are caused in this way.

The root canal filling for a deciduous tooth should be absorbable. No metallic substance should be used, nor should any strong, irritating drugs be a constituent. Cotton should not be used. Among those substances, which may be satisfactorily used, are chlora percha, oxide of zinc and medicaments, balsam of peru. Whatever is used it must be easily inserted.

Proceedings of Dental Societies

ST. THOMAS DENTAL SOCIETY.

Reported by H. H. WAY, D.D.S.

Drs. E. W. Honsinger, C. B. Taylor and C. C. Lumley are hunting in the wilds of Northern Ontario for three weeks.

Dr. Bennett is being nominated and strongly supported to represent District No. 5.

Dr. Suman Waugh, of Buffalo, has kindly consented to address members of the Elgin Dental Society in February on "Anatomical Occlusion," to be illustrated by models and lantern slides, and later on we hope to be also addressed by Mr. Horace Fletcher, the "Chew, chew, man."

NORTHWESTERN DENTAL SOCIETY OF ONTARIO.

A meeting of representatives from Durham, Markdale, Flesher-ton, Dundalk, Shelburne, Mount Forest, Arthur, Grand Valley, Erin, Fergus, Elora, Alliston and Bolton was held recently. The following officers were elected:

President, R. Meek, Orangeville.

Vice-President, A. H. Allen, Mount Forest.

Treasurer, J. R. McGregor, Elora.

Secretary, J. A. McArthur, Markdale.

A banquet was tendered the visitors by Mr. Henry, of the Temple-Pattison Company.

The society is to meet twice a year to discuss matters of interest to the profession in the district

HAMILTON DENTAL SOCIETY.

Report by DR. O. S. CLAPPINSON.

The annual meeting of the above society, season 1910-11, was held Monday evening, Oct. 10th, at the Hotel Royal.

The chief item of business was the election of officers for the coming year, resulting as follows:

Honorary President, J. A. C. Hoggan.

President, A. V. Lester.

Vice-President, Geo. W. Everett.

Treasurer, F. P. Moore.

Secretary, J. L. Kappelle.

Dinner Committee—W. G. Thompson, J. Johnston, J. W. Bell.

Programme Committee—R. T. McDonald, D. Clark, O. S. Clappinson.

Ethics Committee—J. E. Overholt, F. Hansel.

The society endorsed the nomination of Dr. D. Clark as candidate for the Board of the R. C. D. S.

It was decided that the society should appoint an Educational Committee irrespective of the Ontario Dental Society, the reason advanced being the nature of its appointment.

ABSTRACT OF RECEIPTS AND DISBURSEMENTS OF THE
JOINT CANADIAN AND ONTARIO DENTAL SOCIETIES' CONVENTION FOR THE YEAR 1910.

RECEIPTS.

Canadian Dental Association	\$100 00
Ontario Dental Society	100 00
Fees from Members	938 50
Grant from City of Toronto	300 00
Publicity Committee (Refund)	2 00
Exhibit Committee	190 50
Sale of Boat Tickets	82 00
Sundry other Receipts	3 97
Interest on Deposits	35
	<hr/>
	\$1,717 32

DISBURSEMENTS.

Steamboat Tickets	\$420 00
Refreshments, etc.	323 25
Expenses of Committees	155 40
Expenses of Demonstration	95 00
Printing, Stationery, etc.	155 25
Stenographer and other assistance	97 90
Sundry Petty Cash Disbursements	67 24
	<hr/>
	\$1,314 04
Cash in Bank	403 28
	<hr/>
	\$1,717 32

C. ANGUS KENNEDY,
Treas. C.D.A. and O.D.S. Joint Convention.

Audited and found correct.

W. E. WILLMOTT.

Selections

OBSERVATIONS ON THE CONDITION OF THE MOUTH IN 1000 CONSECUTIVE CASES OF CHRONIC DISEASE.

By R. ACKERLEY, M.B.

I hope that I shall not be regarded as an intruder in addressing you to-night. Though your Section deals with a branch of medical, or perhaps I should say surgical, work of a highly-specialized kind, there are so many occasions on which the practitioner of general medicine needs your assistance, and in turn on which you need his; there are so many problems relating either to the maintenance of health or the ætiology of disease in which we are jointly concerned, that the more we study these questions together, the more likely we are to obtain useful knowledge. The amalgamation of our various Societies into one Royal Society of Medicine has rendered this joint study more easy, and was one of the main purposes of the amalgamation. So in asking you to allow me to put before you some observations made on a part of the body which is your especial study, I feel I am not departing from, even if I am not initiating, a procedure contemplated when this Society was formed.

Before proceeding to deal with my subject, may I be allowed to say that the title does not really describe it? Those of you who are parents know how hard it is to "name this child," and how often the name that is decided on and given does not suit the child in after-life. It is the same to some extent in giving the title to a paper. I chose the title of my paper as the shortest which would at all indicate what I hoped to deal with, but a better title would be: "The Condition of the Teeth and the Way they are Used in 1,000 Patients with Chronic Illness."

It is now agreed and taught by our profession that for the thorough digestion of food careful mastication is necessary. One can hardly take up a single book on food, dietetics, or general treatment, without seeing some statement to that effect; but when one comes to actual practice one finds that the directions given to patients on the importance of mastication are too frequently given perfunctorily and without conviction. "Eat carefully" seems to be the most that is generally said to a patient, and often even that is omitted. But if careful mastication is necessary for those whom we choose to call healthy, because they are in the vigour of youth or have no marked pathological symptoms, surely it is much more obviously necessary for those who are failing in health and whose nutrition is imperfect; especially in the large group of chronic diseases in which there are marked dyspeptic symptoms or faulty metabolism. This includes all the diseases of stomach, bowels, liver,

pancreas, and, directly or indirectly, most cardiac complaints; the conditions described as gouty and rheumatic; and all those in which there is obesity or wasting, or tendency to waste. Quite apart from the definite evils following the swallowing of lumps of food, or imperfectly salivated food, is it not obvious in these cases that it is only by attention to mastication, whatever else we do, that we can hope to improve the impaired nutrition? A great deal of attention has been bestowed on the dietary of sufferers from chronic complaints, and it is quite common for patients to be supplied with a list of articles of food that they must, or must not, eat; but very rarely, indeed, do I find that they are told, as I find it is often necessary to tell them, "It is far less important what you eat than how you eat it."

But we may take it that it is agreed that thorough mastication is important. That being the case, one would expect that one of the first things that the medical advisers of people suffering from chronic complaints would, so far as they could, insist on would be attention to the condition of the teeth, the removal of defective teeth, especially if septic, and the correction of any mechanical impediment to mastication. How far this is done can only be found by careful inquiry, and as, with my own patients, I have kept more or less detailed notes of the state of the teeth and how they are used, I thought it would be worth while going through a fair number of cases of chronic illness, selecting a number easy to deal with. The cases are of the type usually seen at the spas; many of them are of very considerable duration, having been under treatment for many years, often by several doctors, and, on the whole, the patients are genuinely anxious to obtain and follow advice which is given to them with any show of reason fortified by conviction. They are sufferers from various forms of dyspepsia, affections of the stomach and bowels, rheumatism, gout, (so-called) rheumatoid arthritis, arterio-sclerosis, neurasthenia, and the majority of them are past middle life. The information I have got as regards the teeth and habits of mastication is arrived at in the ordinary examination of the patient; not the minute examination made by the specialist, but, if anything, the minimum that ought to satisfy the conscience of any medical man, however busy he may be when consulted regarding any general condition of health. After ascertaining the kind and quantity of food that is taken during the day, the question is put, "And how do you treat your food in your mouth?" The answer may be, "Oh, I am very careful to bite it up well," or "I'm rather quick over it"; but it is astonishing to find how often one gets at once the reply, "I know I ought not to, but I am afraid I bolt it." If the admission is merely of quickness, one nearly always finds on further inquiry that this too means "bolting," or at the most that meat receives some slight attention from the molars, but that bread, cake, potatoes, and even fish go down quickly. But the statement that care is taken cannot

be accepted straight away. Very often there is a candid husband, or wife, or daughter present at the interview, who immediately exclaims, "Oh, indeed you dont, you bolt your food like anything; I am always telling you about it"; and, again, a few questions elicit a confession of a rapid meal and bolted food. One man assured me he masticated well with one upper molar and some loose septic stumps in the lower jaw. But even when it is alleged that much time is taken over a meal, this must not be accepted as evidence of careful mastication. A case of a man suffering severely from neurasthenia and colitis with very defective nutrition illustrates this. I was practically sure that one factor in his case was that he bolted his food, but he and his wife assured me that he masticated well, and was always the last to finish a meal. I made an excuse to get him to dine with me alone, and then I found that though it was true that I had to dawdle over each course in order to be decently polite, and even then finished first, every mouthful of his food was bolted. The truth was he spent the dinner-time in talking instead of eating; and if you notice your talkative neighbors at a dinner party you will find that this is a common habit, and makes one doubt the value of gregarious feeding. Having ascertained the method of eating—and may I say that I am careful in making notes not to allow any bias to come in, so that frequently I record statements that food is masticated, though I much doubt it—one goes on to ask, "What kind of teeth have you got?" following this up with, "Let me see them." An answer that they are bad is of course promptly verified, but one that they are good is much too frequently founded on a conception of goodness very different from one's own. One is told they are good when there are no lower molars at all—artificial or natural—or when no two molars meet, and when, though many teeth remain in the head, each one is lying in a bed of pus, or is decayed down to the gum. If one is told that there are few teeth, but that they are supplemented by plates, then one has to see the plates. Often there is an upper plate with no lower teeth, natural or artificial. One ought to remove and examine the plates, and I have to confess that on some occasions I have not been able to do this, so that I must have failed to record more or fewer cases of plates covering septic stumps, and so far my analysis will be incomplete.

Before giving an analysis of the cases, I wish to say that over 90 per cent. were of really well-to-do people. Not 2 per cent. of them suggested, or would suggest, that want of means prevented them having the teeth put right, and the vast majority of them were going to a doctor or dentist more or less regularly.

In the table I am about to give, I have adopted certain headings. "Excellent" means a mouth containing all the teeth in a good state of preservation, with or without all the wisdom teeth, with no gaps, and with only few stoppings. "Very good" would mean teeth with practically all grinding surface intact, even

though many have been stopped. "Good" is applied to a mouth with nothing more than the loss of three molars altogether—i.e., of not more than about 25 per cent. to 30 per cent., or teeth where the gaps, if large, are filled by satisfactory artificial teeth. "Fairly good," if the grinding surface is not diminished by more than 50 per cent. With less than this, I call them "defective." As regards plates, I make no separate entry of a plate, unless it provides at least 50 per cent. of teeth in upper or lower jaw, and I class them as "very good," without comment, or "defective," according to the report of a patient as to the way they can be used for mastication, and their obvious merits or demerits. Loose or imperfect plates are classed as "defective," and I have no doubt that many not so described would by an expert be so described.

And now, taking these classes, what does one find in the 1,000 cases observed: 9 cases, or 0.9 per cent., are described as "excellent"; 22 cases, or 2.2 per cent., are described as "very good"; 198 cases, or 19.8 per cent., are described as "good"; 74 cases, or 7.4 per cent., are described as "fairly good." That is 303, or 30.3 per cent., are either really good or fairly satisfactory, and provide, taking not too high a standard, teeth sufficiently good for mastication.

Now, taking the other classes: Defective mouths number 360, or 36 per cent.; septic—i.e., obviously septic without the minute examination given in a dentist's chair—227, or 22.7 per cent., with 0.8 in addition marked septic with a query. Of these, 185, or 18.5 per cent., were both septic and defective; the rest—i.e., 42—had septic gums with rotten stumps covered by plates. In many of the septic cases there were smaller plates, but, as explained, I record plates only when they supply 50 per cent. of the teeth.

As regards plates, 87, or 8.7 per cent., are described as good, 250 as plates only, and 20 are recorded as being definitely bad as plates, and are classed also as defective.

Summarizing these, we have therefore: 30 per cent. able to rely on their own teeth; 33.7 per cent. relying on plates, of which only 8.7 per cent. are definitely stated to be good; and 36 per cent. with defective teeth—i.e., with less than 50 per cent. of grinding surface. In the two last classes, 22.7 are obviously septic. Going further, among those not described as septic, there were 20, or 2 per cent., in which foul teeth had only recently been removed.

Now, is not this a rather serious state of affairs, considering the class of patient? Had a hospital or less well-to-do class been taken, I have abundant evidence that the septic and defective sections would be enormously increased. Quite apart from the probability that those who now have plates passed some time with defective and septic mouths, is it not a reproach to us as a profession that more than one in three people in contact with medical men and dentists, and often in contact with men of some note, should be so badly equipped for so necessary a function as mastication?

tion? But that more than one in five should possess a foul mouth is still worse. And what makes it worse is that this condition is deliberately allowed by doctor and dentist. Without assuming that all patients tell the truth about the advice given to them, I have direct evidence in not a few cases that even when attention has been directed to the condition of the teeth, a doctor or dentist (and sometimes it is both) has positively advised that a defective or septic mouth should remain in that condition. Let me quote a letter I recently received from a patient whom I saw last summer, suffering from severe dyspepsia, and with a general condition one would describe as severe neurasthenia, which was, I believe, due partly to a want of nourishment, and partly to a poisoning of all the tissues of the body owing to a foul and septic mouth.

February 4, 1910.

Of course, I must not expect any pity from you, as I have not followed your advice and had all my stumps out. I did see my dentist on my return from Llandrindod, and, as neither he nor Dr. X. thought it advisable to have them all removed, I did not have them out. I am having some of them out next week, and if I do not feel better then, I expect I shall have the remainder out, and shall then hope for a speedy recovery.

Now, this letter was written nearly nine months after I had definitely told the patient she could not possibly be well, and I dare to say most positively and dogmatically that it was not possible for her to be well, with a foul and defective mouth.

I know quite well what would be said—viz., that she was not fit for the operation involved. That is—I must be forgiven speaking so positively—one of the most pernicious bits of nonsense talked and acted on that I know of. During the whole of my professional life I have once, and only once, come across a case of *chronic* disease in which delay in extracting teeth has been necessary for more than a week or two, and then the mouth was carefully attended to, to render it less septic, and finely divided food was administered to give the digestive organs a chance.

This was a case of a man, aged 35, suffering from what would at one time have been called pernicious anæmia, but now is more correctly designated “septic anæmia.” He was very ill, and had been going downhill for over two years. During the whole of that time he had been under medical advice, and had been visited once or twice a week. The mouth was markedly affected. The teeth were carious and the gums inflamed and septic. Under suitable treatment, beginning with a proper cleansing of the mouth, and later an extraction of the offending teeth, the man made a good recovery. His regular medical adviser informed me that he had been waiting for the patient to get better before he had his mouth attended to!

But to wait week after week, month after month, I may almost say year after year, to get a patient into a condition to attend to

the *fons et origo* of his illness, expecting, I suppose, that something wonderful in the therapeutic line will turn up, is, I venture to suggest, foolish, and will some day be regarded as professionally criminal. For over sixteen years it has been my practice to deal instantly and without compromise with these cases—a large number of them with the assistance of my friend Mr. Mellersh—and never once have I regretted, and never once has a patient regretted, the prompt treatment, as the improvement in health has followed immediately on whatever operative procedure was necessary.

Let me give another and even worse case: Eighteen months ago I saw a well-to-do patient in a very serious condition of health, crippled with what was called rheumatoid arthritis, a great sufferer herself and an anxiety to others. One obvious factor was a septic and defective mouth. That is, in a case of markedly defective nutrition, food could not only not be properly prepared for gastric digestion, but, to make things worse, was fouled and poisoned by a purulent secretion which was also passing into the stomach by day and night. Had I had a dentist at hand, I am sure I could have got her mouth attended to there and then, but I had no one within many miles. She went to town, and then passed under the care of a doctor who had attended to her for some time. He regarded her as unfit to have her mouth attended to, and so for another year she went on, until late last autumn she came under Mr. Mellersh's care in a condition no better fitted for interference with the mouth than she was twelve months before. I describe the condition in which he found her in his own words: "Teeth large and well developed. For this patient it was necessary to remove the roots of the upper left third molar, the first and second premolars, and the second right premolar, these having chronic abscesses discharging from fistulous openings in the gum. Gold caps had been applied some years previously to the following: Upper right, second and third molars, upper left, first and second molars, lower right second premolar, lower left second premolar.

The gum having receded, caries had attacked the roots and crowns of all teeth, with the exception of the upper left first molar, and the lower right second premolar. The caps had been badly fitted and there were spaces between the natural crowns and the encircling metal. Presumably at first the spaces were filled with cement, but most of this had disappeared, and there was a considerable amount of decomposing material under the caps. It was therefore decided to remove these metal crowns, and it was found that all the teeth were extensively carious with the exception of the lower right second premolar. The carious matter being removed from the teeth, it was discovered that the only ones worth saving were the upper right third molar, the pulp of which was exposed, and the upper left second molar. This latter was dead, and no attempt had been made to treat the roots; the pulp chamber contained a mass of septic wool covered with cement. The incisors

and canines presented numerous cavities, some of which were filled with gutta-percha in a more or less septic condition."

Now, what plea can possibly be put forward to justify a condition like this being allowed to exist month after month, even year after year, with a patient going slowly downhill? This is again only an illustration; such cases are common. But it is to be admitted that it is usually in cases where there are fewer foci of sepsis that the dentist and doctor are complaisant. But surely organic septic matter does not become harmless, even if the quantity swallowed is relatively small. Emphasizing the words differently, perhaps, from what Tennyson intended, may we not say:—

"It is the *little* rift within the lute
That by and by will make the music mute."

I feel convinced myself, after holding a post as medical officer to an isolation hospital for many years, that the severity of throat symptoms in diphtheria and scarlet fever, and of the severity of an attack of enteric fever, depends largely on the presence or absence of oral sepsis; and in such a disease as appendicitis there is much reason to believe that oral sepsis has much to do with the more severe cases in which a catarrhal rapidly becomes a purulent inflammation. The extraordinarily rapid improvement in the dyspepsias and other troubles of people where there is only slight sepsis when this is attended to by itself justifies such attention and makes delay blameworthy. The importance of a clean mouth to health and longevity is being more and more—though too slowly—recognized by the medical officers to insurance companies. The following extracts from addresses by Sir James Barr and Dr. Hector Mackenzie are interesting and instructive:—

Sir James Barr.¹—A foul-mouthed individual is liable to many troubles, and he is a greater danger to himself than others. The nose, mouth, and bad teeth afford a large culture field for the growth of many pathogenic organisms which are ever ready to attack the individual when his resisting powers are lowered. In the mouth and throat the organisms are bred which give rise to such fatal diseases as pneumonia, pernicious and other septic anæmias, etc. If the insurance companies added to the premiums one-eighth per cent. for every bad tooth in the applicant's head they would do some good to the dentists and lessen their own risks. The great increase in recent years of diseases of the digestive tract, such as cancer of the stomach and large bowel, appendicitis, etc., are largely due to dietetic errors and constipation.

Hector W. G. Mackenzie.²—I need not enlarge on the importance to health of the body of sound teeth and gums. In many of the medical report forms the examiner is specially asked to report on the condition of the teeth and gums. Unhealthy or defective teeth are responsible for much chronic dyspepsia and consequent

1. Brit. Med. Jour., 1908, i., p. 243.

2. Lancet, 1910, i., p. 702.

ill-health, but there is one disease of great prevalence and of vast importance affecting the gums primarily and the teeth secondarily, which at the present time is ill understood by many members of our profession—Rigg's disease. You find the margin of the gum red and swollen and pus exuding from the sockets of the teeth. A slight degree of pyorrhœa may be passed over, but a high degree is incompatible with a good condition of the general health, and must always be considered as a source of danger. In my opinion no life with a decided pyorrhœa is a good risk, and acceptance should be postponed until the mouth has been put in a healthy condition. When I come across a pale, unhealthy-looking subject, I always suspect among other things this disease. When a proponent who wears artificial teeth is under examination he should be asked to remove them. I have frequently found that underneath the plates there are stumps with pus oozing from the sockets. Many a case of obscure health is due to a septic condition of the mouth, a condition which, because unsuspected, is not looked for and not discovered.

I am in agreement with both, but think Sir James Barr's suggestions go further and are more practical than Dr. Mackenzie's. We want the slight sepsis to be recognized and dealt with drastically. A small destructive fire is potentially as dangerous as a big one.

It is true that both doctor and dentist have trouble to get patients to consent to having gums cleaned and septic roots removed, as it is not always possible to make them believe that their suffering is due to the condition of the mouth. But I find that one way of putting it appeals to them. They readily agree that they do not care to eat dirty food or food on a dirty plate. Without using long words, one then tries to show them that they are themselves soiling their food. Another argument is, they would not suck and swallow the pus from a suppurating wound on the hand. They why swallow pus arising in the mouth?

Now, in all these cases it may be said that even admitting that a clean mouth and sufficient grinding surfaces are necessary, except in the cases of chronic dyspepsia there is nothing to draw attention to the alimentary canal. This is not so, as dyspeptic symptoms are marked in the majority of cases. Of my 1,000 cases no less than 529 complained of, and were continually treating themselves or being treated for, constipation; 57 had chronic or intermittent diarrhœa, and 576 flatulence. So that there was obviously something wrong with the food passage.

This brings me to the habits of these patients, toothful or toothless, in treating their food: 507 confessed that they bolted their food, and to that number I add 91, who had teeth so defective that even moderately good mastication was impossible, making 598; and 798 confessed that when soft food was taken they let it go down without any mastication or insalivation, using their mouths like

the opening into a letter-box. I use the expression "posting" food for these people, borrowing the expression from a writer in one of the medical journals several months ago.

But though it is impossible to enter into the necessary details in a short paper, I have found an enormous difference in the vitality of those who with a clean mouth bolt their food, and those who necessarily bolt it because of defective mouths; and again there is the class with the worst general health, the 22 per cent. with septic mouths.

Now, whose business is it to see that our patients learn to keep their teeth in working order and their mouths clean? Of both doctor and dentist, I think; but the dentist has special opportunity of impressing the teaching on his patients during examinations, and in carrying out mechanical work he has time and opportunity to tell his patients how to use the teeth and the importance of using them; he can dwell on the loathsomeness and danger of a foul mouth: he can tell them the results which necessarily follow bolting or "posting" food. One may regard, too, the care and use of teeth as being especially in his department of medical work. In a large class of patients—the young—I understand that careful mastication is important, if not essential, in producing a good set of secondary teeth. But are mothers and the children themselves sufficiently impressed with this necessity? Get the child to acquire good habits and no one can estimate what has been achieved in the best work our profession can do—viz., in the prevention of disease. As regards "posting," not sufficient has been said and taught. But is it not obvious that the food which is softened and rendered pappy or semi-liquid by the combined assistance of miller, cook, and nurse, is nearly always farinaceous—the very food which requires most careful insalivation for its digestion?

You who are here doubtless do preach and teach as I suggest, but an enormous number of men do not, and so I urge on you that you should not only teach your own patients yourselves, but, in season and out of season, impress on your fellow practitioners and students the desirability of teaching their patients. And the teaching should be with conviction, so that it may be possible for patients to say, as I often hear them say, "Oh, yes, I've been told I ought to masticate properly, but not in a way to make me think it was really important."

Correspondence

A SERMON DISCUSSED.

Editor Dominion Dental Journal:

Dear Sir,—In the October issue of "Items of Interest," just to hand, there are two articles that should not be allowed to go unchallenged.

The first is a front-page article, entitled "Empiricism of Bridgework, by Dr. Herman, E. S., Chayes, and the other an editorial "sermon" on "Public and Private Dental Services for Children," the text being "Inasmuch as ye have done it unto one of the least of these my brethren ye have done it unto me."

I will deal first with the editorial sermon, and in a subsequent number, with your permission, I will have something to say concerning the article on bridgework.

I have no desire, Mr. Editor, to enter upon a "journal" controversy, especially with an editor, and I know very well the great ability of the editor of "Items of Interest" to use words, but I look upon his article as a gratuitous insult to every honest man in the dental profession. I will pass without comment the "straw man" set up in his opening paragraphs, where he speaks of "a loud cry," "a perfect paroxysm," "spreading like an epidemic," "anon there is a wail from the wilderness and the mourners cry out at the stupidity or cupidity of municipal officers." How very true it is, Mr. Editor, that when we "sacrifice the sense for sound the sense is never sound."

In the two paragraphs dealing with "the physician" we have a heterogeneous conglomeration of common-place fact, fulsome flattery, and euphonious "slush," the whole being a ridiculous attempt to place "the physician" upon a pedestal that raises him altogether above the ordinary mortal in any other walk of life, and to make his work in life appear as a sort of "glorified philanthropy." While I have no desire to undervalue the work, charitable and other, of the honest physician, most intelligent men know now that they are made of the same kind of clay as ordinary mortals, with all the faults and failures common to the race. Thinking men know more. They know that no class of men, professional or lay, is in so good a position to trade on the credulity of the public, and they know, too, that vast numbers of physicians take advantage of their ability and opportunity to do this very thing.

In recent times the public has learned something more regarding physicians, viz., that for a fee they are ready and willing to go into court and swear to anything that they may be asked to swear to. In proof of this I have but to refer to the "Thaw" case in New York and the Fraser case now before the courts in Canada. It is the veriest clap-trap to talk of "the doctor can be trusted,"

"his charity," "his self-sacrifice," "his untiring devotion," "remain in the hot city," "forego his much needed summer vacation," "visit the tenements," etc. But the funniest thing of all this word-painting is this, "In time of war they see him upon the fields where the bullets are thickest." It's romantic; it's tragic; it's euphonious, but it's—"gush." Every school child knows that physicians and nurses are not usually "upon the field where the bullets are thickest" and that such "red cross work" is protected by international arrangement.

I think, Mr. Editor, that most people are satisfied that physicians are just like other men—good, bad, and indifferent.

In the succeeding paragraph the dentist and his work are described, or rather, caricatured. Some questions are asked, and because of the answers, which, it is assumed, must be given to these questions, the dentist is compared unfavorably with the physician. Let me quote a few of the questions propounded. "When a school child is sent to one of these dental clinics does he receive the acme of dental attention?" "If suffering with appendicitis would he not have so-called surgical attention?" "If sick at all would he not be treated, regardless of the cost of maintenance, until convalescent?" "Are gold fillings inserted free?" "Are abscessed teeth treated and cured, or are they extracted?" These and kindred questions are asked in order to institute a comparison unfavorable to the dentist and to try to make it appear that dentists are less public-spirited, less charitable, less self-sacrificing, and less in sympathy with the great fact annunciated in the "text."

Permit me, Mr. Editor, to answer some of these questions.

1. "When a school child is sent to one of these dental clinics does he receive the acme of dental attention?" We have no dental clinic of which I have any knowledge in Canada outside the clinic of the Royal College of Dental Surgeons, and I do know that in that institution all children receive good, honest, intelligent service, the operations being performed by senior students under the direct supervision of capable graduate demonstrators who have given years of service to the work of the college clinic.

If suffering with appendicitis would he not have skilled surgical attention? Yes, in a building erected and maintained by the Government, by the municipality and by private donations from wealthy and public-spirited citizens, with a corps of trained house surgeons and nurses to prepare the patient for the operation and look after the patient when the operation was completed. No, if the operation has to be performed in the physician's private office, and the "looking after" has to be done by the physician or his assistant, all that the attending physician gives in such cases is his time.

"If sick at all would he not be treated, regardless of cost of maintenance, until convalescent?" Most certainly not if the treat-

ment and maintenance cost the physician anything. No sensible person would expect it.

"Are gold fillings inserted free?" Yes, in some cases. But all this talk about putting gold into children's teeth, treating abscessed teeth, and using the rubber dam for children is simple grand-stand play, and every intelligent dentist knows it. It is neither "laziness" nor "incompetency" that causes dentists to stop short of the "acme of dental attention" in dealing with children. Every honest man knows that it is impossible to do for children the same class of operation that may be done for an adult. Why? Because an adult will suffer the pain and inconvenience of a prolonged operation for the benefit he hopes to secure, while the average child could not, and would not, submit to a similar operation without being driven into hysteria.

Abscessed teeth cannot be properly treated for the average child because it is impossible to keep the child still to keep the cavity dry or to induce the child to endure the necessary pain and inconvenience. The best that most honest dentists can hope to do is to "nurse the teeth along" until the child is old enough to have some sense of discipline and some idea of the necessity of saving his teeth. Some dentists can do more for and with children than others, and some children are better patients and more easily controlled than others, but no dentist can do for the average child the class of operation which the editor of "Items of Interest" does on paper. To say otherwise is to deny the difference in intellect, in discipline, in self-control, in ability to endure, in appreciation of values between children and grown people.

Let me say further, that to attempt to do for children the class of operation suggested in the article under discussion is condemned by many of our most thoughtful and capable operators. The result to the patient in many cases would be most disastrous, physically and mentally—and a dread of dentists and dental operations would be created, that would keep such patients away from dental offices even in adult life.

Further, Mr. Editor, in twenty years active practise I have not known a single dentist who did, or who professed to do, for children, operations such as would be done for adults—and "I am from Missouri."

Two of the questions in the editorial are so irrelevant, so absolutely puerile, that it is hard to believe they were intended to be taken seriously. Allow me to quote them to bring these "gems" to your attention.

"What have we done to prove that we would be safe custodians of these precious little ones?"

"What would we say of a physician dismissing a child from a hospital half cured of diphtheria and excusing himself by saying, 'She is much better than when she came in'?"

The fact that the teeth of the adult population of the United

States and Canada (native born) are "the best in the world" is proof positive that "we have been safe custodians of these precious little ones" of the past, and more and more parents are recognizing the importance of looking after the teeth of their children, so that while "we have not yet attained" "we are going on to perfection." The average dentist has made an honest effort to give to the children (precious little ones) committed to his care good, honest service, and while this may not possibly have been "the acme of dental attention," it has been the best possible when all the circumstances have been considered.

The second question is, if such be possible, even more ridiculous than the first.

The talk of "curing" diphtheria, or "curing" pneumonia, or "curing" typhoid fever, is to assume that the physician carries about with him some occult power, which in some mysterious manner unknown to ordinary mortals, bids disease "depart" and it departs, and says to health, "come," and it comes. But thoughtful people to-day know that this is an exploded theory and that the great work of the physician is to give intelligent advice regarding the care of a patient and to assist nature to bring about a restoration to natural, healthy conditions. To make a comparison between such service and filling a tooth with amalgam or any other material is to render absolutely absurd the consideration of a question that should receive serious and intelligent thought.

As you very well know, Mr. Editor, and as every other thoughtful dentist knows, no intelligent comparison can be made between the work which a physician can do for the poor and that which a dentist can do for the same unfortunate class. A physician can make a call at a patient's home, or see a patient in a hospital, diagnose the case and write a prescription, and such service may be of inestimable value, and all the "paraphernalia" necessary is a lead pencil or a fountain pen. Even a surgical operation may be performed and no necessity arises on the part of the physician to provide many instruments or other apparatus. But with a dentist conditions are very different. He must, of necessity, have an operating chair, some form of cabinet or bracket, a great many instruments, a lathe and other laboratory equipment, and these it is impossible to carry about from place to place.

A physician in nearly every case goes to his patient, but the patient must of necessity come to the dentist. Because of this fact a waiting room is necessary, and deplore the fact as we may, it is absolutely impossible for the average dentist to have "the masses and the classes" meet in and use a common waiting room.

The subject of the editorial "sermon" in "Items of Interest" is one that no thoughtful, decent man can lightly dismiss or afford to ignore, and it is very much to the credit of the dental profession that the most thoughtful men in her ranks are giving time and thought to the solution of this very different problem. But the

manner of dealing with the subject in the article under discussion lacks in every essential of good taste, sound judgment, and that quietest of all virtues, the "charity which covereth a multitude of sins." The "sermon," so far as I have been able to understand it, contains one very excellent point—the text. No fault can be found with that.

Very truly yours,

A. W. THORNTON.

Toronto, Oct. 18, 1910.

THE CAUSE OF SHOPPING.

Editor Dominion Dental Journal,—

Will each reader of your journal be so good to himself and his fellow practitioners as to consider what he is really doing by giving or promising free consultation? We may suppose without fear of error that a dentist expects reward of some sort for anything he does, and that what he proposes to do by the name of consultation is no exception, whether he pretends it free or not.

One certain result of free consultation is shopping—and shopping at the expense of men who offer or allow free consultation. Why do not physicians and lawyers allow consultation free? Because they have more sense. Why is there so large a number of people in every town and city in Ontario who have no regular family dentist? Because those people can shop from one dental office to another without cost; finally choose what they think a bargain, same as they do in the dry goods stores. The free consultation aspirant uses up his time, eyesight, patience, life, etc., to prepare a shopper with opinion, diagnosis, charges, and other matter to use in consulting the next dentist. Finally the thing to be done goes to the lowest bidder. After a score or so of this kind of cases pass through a dentist's hands without leaving any money in them, he decides upon a change—not in his fool policy, oh, no!—he decides to cut his bids and get these people away from the other fellow. And thus it goes.

Why not cut out the free consultation advice or examination? A fee of \$1.00 for office consultation, same as charged by physicians, would not only be fair and justly earned money but it would stop this annoying practice of the shopper, and the further degradation of dentistry and dentists.

Yours truly,

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Dominion Dental Journal

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THE PHYSICIAN WHO POSES AS A DENTIST.

Why should physicians be appointed to make dental examinations of school children, and, what is worse, advise dental treatment, when every dentist knows that the physician knows no more about dental diseases and what can be done for them than those with whom he has been associated. He has had no training in college or out of it. The medical literature contains nothing of any value on the subject of dentistry. Why should a dentist have any respect for a physician's knowledge in other matters of health when he exhibits such a lamentable want of knowledge about the diseases of the mouth when he assumes he knows, and acts on the assumption.

Dentists come in contact with physicians' advice about the condition of the mouth daily. Only the well informed physician will send his patient to the dentist for advice. Mostly the patient, if advised to see a dentist at all, is sent with instructions to be conveyed by the patient of what is to be done. Here are a few samples met within a short time. "You have rheumatism in your teeth"

and consequently given a prescription for salicates, when, as a matter of fact, the patient had an acute pus infection secondary to calcic deposits.

A woman with pulmonary tuberculosis developed an alveolar abscess at the apex of an upper central root upon which was a Logan crown. Her physician, being somewhat ambitious also as a surgeon, made a diagnosis of tuberculosis of the superior maxillary bone and advised an operation to remove the offending parts. The patient was sent some hundreds of miles to a hospital, and just before entering consulted a dentist, who advised the would-be surgeon that if the Logan crown were removed and the sinews washed out that the case would soon heal up. This advice was followed with a happy result. Every dentist has personal knowledge of patients having been put to bed for weeks with an acute alveolar abscess without any attempt having been made to evacuate the pus.

A general surgeon with an international reputation recently treated a simple fracture of the lower jaw between the cuspid and first bicuspid by bandging the lower jaw against the upper. All the teeth were not present. Through the openings left by the extracted teeth the patient was given liquid diet. The patient being a drunkard, was susceptible to pneumonia, which he forthwith developed. A dentist would suspect that he might have escaped the pneumonia if it had not been for the unclean condition of the mouth developed by bandaging the mouth closed. While the patient had the pneumonia the fragments became displaced and could not be replaced without refracturing. When the patient was discharged from the hospital he was advised to see a dentist to have the teeth extracted which interfered with his closing his mouth. The displacement of the short fragment was sufficient to keep the incisors three-quarters of an inch from coming together. If a dentist had been consulted fracture bands would have been advised. The patient would likely have escaped the pneumonia and would certainly have had a better personal appearance and teeth which he could use. As he was a ward patient the country would have been saved the expense of his keep for eight weeks. The modern treatment of fractures of the jaw does not even necessitate the patient's leaving his daily work, much less confinement in bed in a hospital.

Dentists have been trained not to give advice in departments in which they are not at the time especially treating. No dentist would think of sending a patient to a physician with instructions to the physician or surgeon how the case should be treated, yet the physician will assume to advise what teeth are to be extracted, what cavities in teeth are to be filled, and in some cases what filling material shall be used. Dentists have stood by and known that patients were suffering from oral sepsis and known that the physician was giving two teaspoonfuls from that magic bottle three

times a day, after meals, without even a suggestion that perhaps the condition of the patient's mouth might have something to do with the general condition. The truth is, dentists have too long confined their attention to the mechanical procedures in the mouth, leaving the observation and treatment of other conditions to the physician, who has up to the present failed to either observe them or suggest a suitable remedy. There is much public attention now being given to decay of the teeth, while in itself tooth decay or toothache may be bad enough, but it is the consequences of tooth decay which is of the greatest importance.

WHAT PROGRESS IN ORAL HYGIENE.

Dr. William Hunter, of London, England, who first called attention to the relationship between a septic mouth and pernicious anaemia, delivered an address on this subject at the Academy of Medicine, Toronto, October 4th. Since then there has been an awakening among the physicians of Toronto upon this subject. In this issue appears an article far in advance of what William Hunter ever dreamed of. The dentists of Canada have done more pioneer work in this subject than all the physicians combined, but watch them jump in now, each vying with the other in getting before the profession, and especially the public. It must be interesting for Dr. Adams to stand by and see the very men who turned him down dozens of times now clamouring to be the first. Watch them plunging to be on the crest of the wave. More than one physician in Toronto has recently assumed the role of dentist, giving public instruction in the subject. If a physician, a nurse or a layman can give suitable instruction in dental hygiene it is a wonder the authorities of the R. C. D. S. have not found them out, because they are in search of the best. Indeed, it is a wonder dental students are required to spend four years in the study of their profession that they may have gained sufficient knowledge and judgment to advise what ought to be done for those suffering from dental diseases if those who have had no training can, after a few hours reading, give such instruction. Most people go to a dentist for advice in dentistry, but when the public wish advice in this subject those in authority often send them a physician.

INSPECTION OF THE MOUTHS OF SCHOOL CHILDREN.

Arrangements have been made by the Educational Committee of the Toronto Dental Society to inspect the mouths of the children of one public school. Those children who cannot afford to pay for dental services will be sent to the dental infirmary for treatment.

PUBLIC LECTURES.

Dr. Dowd will deliver an address to the teachers of Toronto Nov. 22nd, instead of 15th, as stated in our last issue. In the evening he will be entertained by the Toronto Dental Society at a

banquet to which will be invited all the leading educationists of Toronto, especially those interested in public health.

LECTURES TO NORMAL SCHOOLS.

Lectures will be delivered to teachers in training at the Normal Schools of Ontario. The Principal of the Toronto Normal School has not been in favor of introducing lecturers to teachers who were not of the staff, but in this case he is glad to make an exception because of the importance of the subject.

DENTAL EXHIBIT WITH THE TUBERCULOSIS EXHIBIT.

The Canadian Oral Prophylactic Association has now in preparation a dental exhibit which will go along with the tuberculosis exhibit. The intention is to have demonstrations made and lectures delivered to show the relation existing between the mouth and general diseases, and especially tuberculosis.

PUBLIC INSTITUTIONS.

Hon. Mr. Hanna, Provincial Secretary of Ontario, is preparing a report which will show what attention is given to the patients in the public institutions in the province. When this report has been made a discussion of the best means to further the work, if deemed advisable, will take place. The Minister is very sympathetic, and upon being informed that lectures on the care of the mouth and teeth are being given to the nurses in training in the general hospitals he thought similar lectures should be given to those in training in the hospitals for the insane. Much good is expected from the work which may be done in these institutions.

There is an intimation that a dentist may be appointed to the Muskoka Sanatorium, who will be a resident officer.

Editorial Notes

The attendance at the Royal College of Dental Surgeons this year is over two hundred.

Dr. W. H. Doherty addressed the parents and children of Queen Alexandra School, Toronto, on the care of the teeth, October 13th, 1910.

The vulcanizer in the office of Dr. Plaxton, Red Deer, Alta., exploded recently, setting fire to the furnishings. The loss by fire to Dr. Plaxton was about three hundred dollars.

The case which Dr. Reade travelled all the way to Victoria, B.C., to act as expert witness in, was adjourned before all the case was in for the prosecution. It is likely Dr. Reade may have to go to Victoria again in a few weeks.

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DR. J. G. ADAMS, THE PIONEER OF DENTAL INSPECTION OF SCHOOL CHILDREN,
SHOWING A CASE OF FACIAL DISFIGUREMENT FROM AN INFECTED TOOTH.

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Original Communications

ORAL PROPHYLAXIS.

HENRY A. KELLEY, D.M.D., Portland, Maine.

Read before the annual meeting of the Quebec Dental Association.

The subject your committee has chosen for me, Prophylaxis and Oral Hygiene, is a very comprehensive one and one that I am sure it is intended I shall treat in my own way. In a recent paper I said: The subject of prophylaxis and oral hygiene takes in almost all of the advancement of dentistry that is going on outside of the development of the purely mechanical side of our profession. In dentistry this embraces all that is being done to educate the public, the care of the teeth of the school children and of the poor, of the soldiers and sailors of our country, and of people detained in state institutions, as well as of our regular patients, as this has to do with preventive dentistry. It embraces all that is being done in the study of the saliva and the attempts to modify the saliva in disease, so that tooth decay may be arrested or prevented, all that is being done in orthodontia, wherein the correct alignment of the teeth prevents and corrects conditions that tend to produce and hasten decay.

This, as you will see, embraces a great deal that marks the progressive dentistry of to-day and that is tending to place us alongside of other specialists of medicine whose watchword is to prevent rather than cure.

I am sure you would not expect, or desire, me to say all that I can say of each and every one of those subjects.

Rather, I think, you desire me to confine myself more especially to a method of preventing decay of the teeth, and the resulting uplift of physical condition, by a system which will produce and maintain a hygienic condition of the mouth.

I think dentistry faces a condition where it is utterly impossible that the few dentists now in practice can begin to cope with the work that will be demanded of our profession if we adhere to the methods in vogue up to very recent times in the average dental

office. All over the world there is a movement leading up to the education of the public in matters dental. So far as we have gone we have established some very interesting and awful facts.

First—We *know* we can step into any school throughout the civilized world, make an examination of the teeth of the pupils, and the result will be this—rising 90 per cent. of all pupils examined will be found to have defective teeth.

Second—Not over 10 per cent. of the people of the United States of America are in the hands of dental practitioners. (And as Americans are given credit for more care of their teeth than any other nationality it is reasonable to suppose no other people can show a better percentage than this.)

Third—A very small percentage of the school children of any nation will be found to possess and use intelligently a tooth brush. (In one American city this was found to be 3 per cent., and in London, Eng., Mr. C. E. Wallis in one examination of 245 children, between the ages of twelve and fifteen, among other things found: "Out of the 245 children only three possessed tooth brushes for their own personal use, and used them regularly." About 1 per cent., you see.)

Now the study of hygiene is becoming very general and the public is quite awake in regard to pure foods, pure drinking water, correct sewerage and ventilation, and many other subjects concerning the general health. Also, most school authorities in my country and yours use medical inspection of the pupils, and especially in regard to the eyes and ears.

Now this campaign of education in dental matters is focusing the attention of the public more and more upon dentistry and dentists. We are doing much along this educational line in my country and you in yours.

In August, 1907, I made a trip to Nova Scotia to attend a meeting of their Provincial Dental Society, and I assure you I was much pleased, and surprised as well, to find so much was being done in the way of the education of the public and the care of the school children in dental matters. In fact, you know, Nova Scotia was the first province in your country to begin the regular systematic examination of the teeth of school children, and, in my estimation, the paper of Dr. Geo. K. Thomson, of Halifax, entitled, "Dental Education of the Public and School Children," read before your Canadian Dental Association and published in the Dominion Dental Journal of October, 1908, was very near, if not, high-water-mark upon this subject up to that time.

I have read with great interest the reports of your Canadian Oral Prophylaxis Association and of all you are doing in Canada along these lines. If I may, at this time, sound a note of warning I would say to you to-day, as I said in 1907 to Nova Scotia—proceed with all diligence along the line of education of the public, but be very careful how you begin free operative measures to relieve the

diseased conditions you already know exist. This I say as the result of many years of study and experience in charity work. Now why all this—simply to recall to your minds the conditions we know exist in the mouths of people to-day and to point out to you how hopeless it is to think that when the public has awakened to a realization of their dental condition we, the dentists of to-day, can even begin to do the operative work necessary.

What then must we do? A certain inspector in the schools of America, he who found 97 per cent. of the pupils in his city without tooth brushes, gave it as his opinion that had each child owned and used intelligently a tooth brush from the time he or she had a tooth fully 50 per cent. of the dental disease he found could have been prevented. I do not think his deduction far wrong.

Is not this, then, our first duty—educate the public to understand the necessity and desirability of sound teeth and clean mouths and then to show them how to obtain and maintain them.

Thus I feel confident in saying we can prevent 50 per cent. of the dental disease that would otherwise obtain.

Then of the work, operative, that remains to be done I should say it would be fair to say only about 10 per cent. would have to be done by charity, or something like 5 per cent. of the work now demanding attention in our public schools.

Now let us proceed to the proper care of the teeth and the mouth as I understand it, or more to what in dentistry is now called oral prophylaxis.

Those of you who may have read my paper, "Prophylaxis in Dentistry," published in the *Cosmos* for November, 1909, will, if you were interested and your memory is good, recognize much of that in what is to follow. For after a year I know of no better way to express my thoughts than to quote quite largely from myself.

We have adopted the term prophylactic treatment because we want to get away from that old term of cleaning the teeth. This old term means to the old-time dentist, and to most of our patients, a very simple and quick brushing with pumice and engine points of the outside surfaces of the teeth. Simply this and nothing more. Now prophylaxis means something vastly more than this. The aim of prophylaxis is to place the mouth in as clean and healthy a condition as possible. How does it achieve this aim? However interested you may be in the practical side, unless you thoroughly understand the necessity for prophylaxis, you will not be thorough in your practice of it.

Let us start with this idea. If the teeth were perfectly formed and we could keep them perfectly clean, they would not decay.

Black says: "A period of marked tooth decay is due to either a temporary lack of oral hygiene, the exciting cause, bacteria, being active, or to some systematic condition which so changes the constitution of the oral fluids as to favor the formation of microbial plaques. It will be noticed in either case the problem is a bac-

teriologic one. The micro-organisms to cause decalcification must be in contact with the tooth and pour their acid by-products directly on its surface. For this there must be some means by which the micro-organisms can be maintained in contact with the tooth surfaces, especially if these be smooth. The bacteria under conditions which interfere with or restrain their growth form a substance commonly spoken of as gelatinoid; invested with this substance they attach themselves to the tooth surfaces. This mass is termed the microbial plaque. If the tooth is kept clean and free from bacteria dental caries cannot exist." (April, 1910, *Cosmos*.)

The teeth are, however, not perfectly formed, neither can we keep them perfectly clean. But, taking our teeth as they are, the more nearly perfectly clean we can keep them the less they will decay. Can that be disputed?

Prophylaxis aims to keep the teeth and the mouth as nearly clean as possible and thus has a perfectly reasonable reason for being. Above all things, I want to impress you with the idea the work must be done thoroughly, and after a clean condition is obtained it must be retained all through life. In the practical case of an average adult patient the theory of prophylaxis is first explained and the patient's interest gained, also her consent is secured to be placed on the list of prophylaxis patients. Then all dental work not up to the standard is brought up to the best standard. Any ill-fitting bridges or crowns are replaced with bridges and crowns that are correct in their construction, especial attention being paid that all bands, when used, are so constructed that there is no gum irritation. And I must here speak of the necessity of correct articulation and contour in crowns and bridges. Many otherwise well-constructed crowns and bridges cause great injury to the mouth, as a whole, because scarcely any attention is paid to articulation or contour. Any abscessed teeth with chronic fistulae are properly treated, and the fistulae cured or the teeth extracted. All fillings irritating the gum are properly finished or replaced with perfect fillings and all fillings not properly contoured, leaving spaces for the accumulation of debris and decaying food, are replaced with properly contoured fillings. If tartar is present it must be removed, and the roots are polished and the pockets healed where possible.

All this is nothing new, to be sure, but before a mouth can be placed in a hygienic condition these preliminary steps must be taken in a more thorough way than I dare say you have ever done.

I may possibly talk for ever without impressing you with the beauty of the cleanliness of a mouth under prophylactic treatment, but just one look into a mouth under such treatment would surely convince you at once that no gum irritating crown, bridge, or filling can have a place in such a mouth, which is as near to the perfection desired as we can reach. After all preliminary work is done, we come to what, perhaps, is understood by you as being

the prophylactic treatment. If tartar be present, the unsanitary condition is not cured, for you will in all probability have done your preliminary work long before you effect a cure of this condition. In fact, it is only since this treatment has been introduced into my practice that I have been able to effect a cure of the majority of pyorrheal conditions.

In beginning our spraying and polishing, the first condition that confronts us is a viscid coating of saliva and gelatinous plaques that covers the teeth and gums. First take a tube of rather hot water, of about 150 degrees Fahrenheit, to which has been added one dram of aromatic spirits of ammonia. The alkalinity of this spray, applied under a pressure of from 35 to 50 lbs., will overcome this vicidity. After thorough spraying with this first spray, alternate with a second spray composed of three-quarters of a tube of warm water and one-quarter of a tube of some of the forms of hydrogen dioxide. To this tube add a few drops—three or four—of essence of anise to disguise the very unpleasant hydrogen dioxide taste. This second spray is used on account of its cleansing effect. As the dioxide comes in contact with the decaying particles of animal matter we have the well-known boiling effect, which tends to lift out and off all foreign matter accumulated around the teeth. Then with a hand porte polisher charged with flower of pumice begin the polishing. To the pumice add two or three drops of essence of peppermint and then add water to make a paste. This paste should be not too thin. The peppermint serves not alone to take away the sandy taste of the pumice but also exerts a cooling effect on the gums and leaves a refreshing and clean taste in the patient's mouth after the operation is finished. I usually go over all the teeth in a rather hurried way in order to first get rid of any matter adhering to the surfaces, and then after another spraying, alternating with both sprays, I pass to the last tooth on the upper left side and go over all the buccal and labial sides of all the teeth, going into the aproximal spaces as well as possible with the porte polisher.

You must have several porte polishers fitted with several styles of pegs. I use three constantly. The first is fitted with a common wooden shoe peg and is used especially for polishing under the free margin of the gum. This gum margin is a very important region and it is probable that if this is kept well polished your patient will never have pyorrhea, or if he has had it, it will never return. The second porte polisher is fitted with a piece of wood from which the shoe peg is made, and you will notice what a nice flat surface you have for polishing flat surfaces of enamel. The third porte polisher is fitted with a very pointed orange-wood stick for reaching as far as possible into the interproximal spaces. Having gone around to the last tooth on the upper right side, again spray all the upper teeth with the second spray, and return to the last tooth on the upper left side, going over the lingual surfaces

and then spraying with the second solution. Then polish your grinding surfaces. The same process is followed with the lower teeth. Then go over all exposed surfaces, both upper and lower, with your porte polisher charged with tin oxide, made into a paste with water, which will impart a beautiful polish to these surfaces. Then apply a thorough spraying to all the teeth with a third solution, which consists of one-half a tube of hot water, to which has been added one-half a tube of some pleasing general mouth wash. (I use Alkalyptol, which I find very satisfactory; not all antiseptic mouth washes leave the same refreshing taste in the mouth and not all are fit for sprays.) Then pass waxed floss silk between all the teeth and clean out the interproximal spaces, spraying with the second spray as necessary. After that, finish with the third spray, finally allowing a rinsing out with a glass of cool water. If your work has been thorough your patient has the first sensation of what a clean mouth means. Patients often tell me they hate to go home and eat and soil the mouth again.

It is well to alternate from month to month, taking the upper teeth first in one month and the lower teeth first the next month. I find that for some reason, which I cannot explain, the upper teeth respond to treatment, especially in pyorrhea cases, much more readily than the lower ones, and I have these two thoughts to offer in this connection. I find that when I begin with the upper teeth I often spend forty minutes going over them, which leaves me but twenty minutes, of the hour appointed, for the lower ones; hence the practice of alternating from month to month. The pumice also becomes much thinner from the admixture of saliva in polishing the lower teeth. I often use the saliva ejector or napkins to offset this latter condition, but I cannot say with what result as yet.

As you first begin to polish with the pumice, your wood point will slip over the tooth and there will be a slimy, greasy sensation. But as you polish and polish you get down to the clean tooth-surface and then you experience that squeaky sound that indicates a clean tooth-surface. The slimy substance you are removing is composed of the gelatin-forming micro-organisms, which I will explain later in a quotation from Johnson and have already partly explained by my quotation from Black. Hence, if you make every filling smooth, allow no shoulder or lodging place for the decay-producing germs to remain, and then destroy the gelatinous film under which the micro-organisms that cause decay are enabled to effect their destructive process, you render it extremely hard for decay to begin or make progress*

Could there be a more reasonable justification of prophylactic treatment than that?

The first treatment, then, must be followed by a lecture and

* Here quotations were read from Johnson's Principles and Practice, pp. 28-32 (3rd edition) which the reader should turn to.

“wash-bowl demonstration” to your patient as to how to care for the teeth, and a proper tooth brush, powder, wash and silk are either supplied or ordered. (Refer to Hutax brush and powder.)

Prophylaxis itself can accomplish almost nothing without the aid of intelligent home care of the teeth, and in this I follow the teaching of Dr. A. C. Fones. You must give each patient a wash-bowl demonstration—in this you take your patient to the wash-bowl and give your own teeth a brushing, at the same time instructing him as to the number of times per day and when to use tooth powder, etc.

Within one month after the first treatment the patient is required to return for another prophylactic treatment. Something of course will have been gained by the first treatment, but not until you have given nine or ten treatments will you find that the patient presents a mouth practically as clean as it was when he left a month before. We can then say that the mouth is up to standard, and the problem then is to keep it so. It is possible that after the first year of such treatment the intervals between treatments can be prolonged to six weeks or even to three months, but never longer than that. It is undoubtedly better to make the intervening time too short rather than too long. You will also find that the time required for treatment can be reduced to one-half an hour, or even twenty minutes in favorable cases. The entire management of the patient must be kept in your hands. As soon as a sitting is over, make the next appointment, and be as careful that your patient keeps that appointment as you are with any other appointment, impressing him with the idea that this appointment is as important as any.

After a time the patient will say, “My mouth is so clean that it does not seem to need further treatment,” and it is to your undoing if you do not insist that the very essence of this treatment lies in the fact that these beautifully clean and smooth surfaces cannot be maintained except by regular polishing at short intervals. Any departure from this rule means a return to old methods and to the idea that any mouth the teeth of which look clean on the buccal and labial surfaces is clean enough because external view does not disclose any filthy condition. Prophylaxis demands that each and every surface of each and every tooth shall be so clean that careful examination, even by a dentist, shall not reveal any unclean surfaces or gum irritation. When you look into such a mouth you will indeed call it “the mouth beautiful.”

Time does not permit me to go into the benefit to be derived from this treatment for the entire system, nor into the aid which it affords in the treatment of all digestive, throat, lung, and nose diseases. Nor can I enter into the subject of pyorrhea. A former president of the Canadian Dental Association, Dr. A. E. Webster, in his address last year, said, “The way to treat pyorrhea is never to let it begin.” And to this I say, Amen. But I must say just a word to emphasize the hope that at last we seem to have a treat-

ment that will render it possible to combat this fearful and heretofore incurable disease for those who had it before they became our patients.

Upon observing how the most distressing cases improve under this treatment—how every month, or even every two weeks, the inflamed condition of the gums subsides, so that tartar that was inaccessible before can easily be reached until it is entirely removed and a lasting condition of the total absence of pyorrhea is obtained, one cannot but bless the prophylactic treatment. In closing, let me impress upon you this one thought: Be thorough and keep up your interest as well as that of your patient.

At a clinic following this paper Dr. Kelly gave a "wash-bowl" demonstration of the proper method of cleaning the teeth, it being impossible to put this into words. He attaches the utmost importance to the proper instruction of the patient.

COMPLIMENTARY DINNER TO JOHN W. DOWD, BY THE TORONTO DENTAL SOCIETY, NOV., 22, 1910.

STATUS OF DENTISTRY.

By A. E. WEBSTER, President.

President: Before calling upon Dr. Dowd, the speaker of the evening, and the other distinguished guests present, I desire to make a few remarks introductory to the addresses which will follow. It is a fact that dentistry had a very early origin. The Egyptians, Grecians, Romans and French knew a good deal concerning the restoration of lost teeth and something of the relief of pain. It was not until William Hunter, the noted English anatomist, put the histology and anatomy of the mouth and teeth on a clearer basis that real progress was made.

Dentistry was practised by physicians until in America there was a call made for a special course in the medical schools. A special course in dentistry was refused. Shortly after this the Baltimore College of Dental Surgery was organized in 1839. Since then dentistry has run an independent course in America. In Europe dentistry is still a part of medicine. In England the Dental Act is under the government of the General Medical Council. The independence of dentistry in America gave an opportunity for rapid advancement and independent recognition by governments and legislatures. The Ontario Dental Act is the oldest in existence. It will also be of interest to those who are present to know that in Canada is a Dominion Dental Council, certificates of whose examination are accepted in all the provinces in Canada except two. The medical profession of Canada have been working upon this same problem for many years without success. Similar attempts are being made in the United States without result as yet.

In America chief attention has been given to technical and mechanical procedures. Such efficiency has been attained in this direction that American dentistry is known all over the world. While this has been going on in America our European confreres have recognized the relation of the condition of the mouth to the general health and gained our attention through the writings of Hunter, Goadby, Preston, Hopewell, Smith and many others. About twelve years ago D. D. Smith, Philadelphia, began polishing the surfaces of the teeth as a means of preventing decay, pyorrhea and mouth infections. He has succeeded so far as to command the attention of the dental world and perhaps has done more than any one dentist to gain the attention of the public.

I believe we have had here in Canada the first efforts made to care for the teeth of the children of the public schools. Thirty-eight years ago last June Dr. J. G. Adams, who I am glad to see is present with us to-night, began agitating in this city for the care of the teeth of the children. It has taken all this time for the seeds then and since sown to bear fruit.

I believe that now since the dental profession in America has become impressed with the importance of oral hygiene that they will as far surpass their European confreres in this department as they have in the other.

This splendid gathering here to-night of prominent educationists, law makers and citizens is an indication of the importance of the subject to be here discussed.

Before calling upon Dr. Dowd I will call upon Dr. C. A. Kennedy, Secretary of the Toronto Dental Society, and to whom no small credit is due, for the report which he will present to you.

REPORT OF THE CONDITION OF THE MOUTHS AND TEETH OF THE CHILDREN IN TWO PUBLIC SCHOOLS OF TORONTO.

C. A. KENNEDY, D.D.S., Toronto.

Number of Children examined	423	471	894
Physical condition below normal	36%	23%	29½%
Mouth Breathers	37%	17%	27%
Cases of Malocclusion	41%	46%	43½%
Power of Mastication more or less impaired	76%	55%	65½%
Inflamed Mucous Membrane	64%	30%	47%
Enlarged Glands	47%	9%	28%
Mouth not considered clean	87%	56%	71½%
Number of teeth lost per child	1.38	1.15	1.26½
Number of teeth filled per child31	1.2	.66½
Number of cavities per child	8.33	6.5	7.19
Abscesses	61%	21%	41%
Pus exuding into mouth	45%	16%	30½%
Suffering from tooth ache	42%	22%	32%

Defective teeth per child	6.22	5.35	5.781½
Percentage of the teeth in the mouth that were found to be diseased	31%	25%	28%
Children needing dental treatment	99%	92½%	95¾%

Dr. Webster: I have great pleasure in introducing to the members of the Toronto Dental Society and their guests John W. Dowd, LL.D., who will address you upon the relation the condition of the mouth bears to public health, with special reference to public school children. Dr. Dowd.

THE MOUTH AND THE TEETH AS FACTORS IN PUBLIC HEALTH.

JOHN W. DOWD, LL.D., Toledo, Ohio.

Six hundred thousand people die annually in the United States that ought not to die. 175,000 of these die from tuberculosis. In the great Civil War that raged for four years between the States the total number of killed and the number who died from wounds in battle was 187,000. Practically as many die in the United States in one year from consumption as was killed by battle on both sides in the Civil War. We had it stated recently, and I believe on good authority, that three million and a quarter babies in the civilized world die annually. One dies every ten seconds. Babies that ought not to die. While Senator Owen made that speech it seemed to fall on unappreciative ears. Why? Because they were discussing in the Senate of the United States the preservation of the physical resources of the nation, the coal lands, the timber lands and the water power sites, and they were trying to make out that Secretary Ballinger was the agent of the trusts and allowed some lands to be entered that ought not to have been entered. While they were discussing the mere loss that would accrue to the nation from these sources—from Senator Owen's estimate there would be annually an economical loss of two billions of dollars—while some lands might have been stolen, three million people sick, while some coal lands might have been exploited, one million sick enough to have the attention of a physician and nurse, while some thefts are made six hundred thousand die annually that ought not to die, and, as I said, 175,000 from tuberculosis. I have faith to believe that in the United States there is a time coming when men and women will be considered the best possession that the United States has, and more attention will be paid to raising good men and good women than to the preservation of the physical resources of the nation. (Applause.) Secretary Herty, of the State Board of Health of Indiana, tells this story as a sort of parable: "A woman in Indiana was threatened with tuberculosis; she wrote to the department at Washington asking if they could give her any information as to the best methods of preventing tuberculosis. They replied they had no information to give her, there was no department of public health.

A neighbor of hers who had some hogs wrote that his hogs were threatened with cholera, could the Department of Agriculture give him any information? Yes. They sent back word giving exact information as to how to treat the herd of swine for hog cholera; and none of the swine died, they were all saved, but the woman died inside of a year." The moral of that story is, in the United States, that if you want the government to pay any attention to you be a hog. (Applause.)

Now, let us look for a while at this chart. Two schools in your city, one where the children of the foreign people meet, and one for your home people. Take the physical condition, take the children first, 48 per cent. of the children the physical condition is not good in one school, 22 per cent. in the other. Now, just look down two lines below and I think you will find the reason the physical condition is not good. Fifty-one per cent. unable to masticate in one school, 20 per cent. in the other, corresponding very nearly to the number whose physical condition was not good. In order to have a good physical condition you must have good mastication, good insalivation, good digestion, good nutrition, then comes good citizenship. I think you will find the anarchists are largely people who have not good mastication, good digestion or good nutrition. Everything goes to the bad in that sort of citizenship. You want good citizens and the best way to have good citizens is to have healthy citizens.

Take a schoolroom like that, the dental surface in the ordinary mouth is from 22 to 24 square inches, not taking into consideration the tongue or tonsils, and they are often the seat of disease just as much as the teeth. Suppose they are uncared for, as they are in a number of cases there. Multiply 22 by 40 and you get 880 square inches. That is, as I remember, about 6 square feet. Suppose 8 per cent. of it is taken care of, that leaves 5 square feet of unclean surface in every schoolroom. It means for the pupils that have those unclean mouths there are gelatinous plaques, putrescent pulps, decayed food in the interstices between the teeth. They are breathing everywhere, coughing everywhere, expectorating nearly everywhere, and disease is developed among the men and women in the world. It is a wonder we have healthy children at all, and if the human body did not possess great resisting power we would not have. If there could be that five square feet of unclean surface in a schoolroom visible to the naked eye there would be a panic, the health officer would be notified and Inspector Hughes. I remember one time Inspector Hughes and I worked for three days to trace down an odor, and after three days' search we found a tobacco box with some decaying grapes in it. The school was dismissed for that. I presume at that time in that schoolroom there were five or six square feet of unclean surface in the mouths of the children. We want to learn to look in the right place. I said to-day to the teachers, and I believe it is true, that those people that are going

about with unclean mouths throw out disease-breeding germs all the time, dangerous to the health of the community, and cause more deaths in the community than would a man shooting from a darkened window on Yonge Street into the moving crowd. If he were to do that you would arrest him and put him in prison. But, because these things are not seen we learn to bear with them. The children wash their faces, the outside of their faces, but they have never been taught to keep the inside clean. In our schoolhouses we pay great attention to sanitary science, we have schoolhouses that are clean from top to bottom, we have sanitary appliances of the very latest manufacture. We make clean the outside of the cup and platter, but inside there is the rottenness of dead men's bones—dead bone if not bones. Take diseased glands, 47 per cent. with diseased glands. Do you know that the German physicians in conducting an investigation have come to the conclusion that a decayed tooth is a better means for bacterial invasion or the invasion of tuberculosis into the body than through the esophagus or through the wind pipe; the germ gets into the decayed tooth, it extends to the alveolar tissue, it goes from there into the cervical glands, and the German physicians say about 80 per cent. of these glandular affections such as are recorded there are tubercular. That is a pretty startling statement, but in the journal of the American Medical Association in the last year those two articles from which I give this authority were given. There is something that ought to be done. It is one thing to know the evil exists. Such an evil as that is a great evil. I was over in Saginaw, Michigan, in March and I talked for three days to the pupils of the public schools and to the public, and after I was there the dentists of Saginaw asked permission of the board and made a dental inspection and they found that 99 per cent. of the pupils of Saginaw were demanding dental attention. Take the army. Why, as I said this afternoon, in the American army in one year one thousand men were rejected on account of defective teeth, and in the British army five thousand men. You know defective teeth cannot make forced marches nor fight brave battles. We use over in our country as an illustration of what good teeth will do our celebrated Theodore Roosevelt. You have seen his pictures, you know what magnificent teeth he has (laughter), and we say over there that his abounding energy is due to his vitality that comes from his nutrition that comes from his digestion, that comes from his ensalivation, that comes from his mastication with those splendid teeth that are a terror to the lions and rhinos of Africa and to the bulls and bears of Wall Street. I will say this, wherever you find any man or woman with rather extraordinary physical power, with well developed energy, you will find a good digestion, you will usually find it connected at the upper end with a good set of teeth.

When I was a boy things used to get wrong with the stomach and the cecum and the ileum; all the trouble used to be down there,

and we doctored for what was inside there, but lately we have come to the conclusion that we have been doctoring in the wrong place, and I think it is Horace Fletcher who says that if proper attention is paid to the three inches of the alimentary canal where there is voluntary digestion, where we can get at it, where we can clean it, if we take care of the oral intake, if we will have good teeth and manage our food properly and send it into the stomach properly prepared, we will never know we have an alimentary canal; if we don't do that we will never know we have anything else; it will give notice it is being abused. I think I am correct in the statement that in many cases of appendicitis an examination of the mouth of the patient afterwards has revealed the same bacteria that caused the trouble in the appendix. The alimentary canal is one and the same from the beginning to the end and we should learn to take care of it.

Now, there are some things we can do. We can sound the alarm and let the people know where there is danger. There are some things upon which we can educate the people. We can educate the people how to take care of the teeth, and in the campaign in which I am engaged, in which I really have great interest, because I feel it is a great campaign, it is a campaign, Mr. Chairman, that has for its object the bringing about of such a condition of affairs that every child born into the world shall have a fair chance, barring accidents, to live to its three score years and ten, and if by reason of strength there should be four score, that added ten years will not be labor and sorrow, but delightful years of mellow autumnal fruitfulness. The place to begin is with the infant. The infant is the potential wealth of the nation. We ought not to let them die. In New York last year 125,000 were born and 15,000 died. A farmer who would not take any better care of his stock than that would be arrested for cruelty to animals, and very properly so. Longfellow says: "There is a reaper whose name is death." My wife said to me the other day that ought to read: "There is a reaper whose name is breath." It is breath, bad breath, that kills the babies. The baby should be taken care of. I told you the number that died. Statistics deal only with the dead. We don't know how many of the living live lives of less physical power than they ought because they were neglected in childhood. Do you know the teeth are all in the infant's mouth, the twenty milk teeth, the thirty-two permanent teeth are all there when the child is born; they don't come in, they don't grow in, they are there in the new-born babe. It is our business to stand between death and the cradle; it is our business to see that that child's jaw has just as good a chance of development as his brain. It is our business to so regulate affairs that those twenty milk teeth may come to maturity and do their work, and to evolve from the twenty, permanent teeth, sound, regular, beautiful. There is no need for these ugly, deformed jaws you see in the world, and so one thing I

should preach, that we all should preach, should be the preservation of the milk teeth until they have done their work.

Another thing is this, I had some friends say to me when I began this work, What do you know about teeth? I said, I don't know much, but what do you know? They knew a good many things. I said, can you tell me how many milk teeth a child should have in its mouth? And do you know I have ordinarily intelligent friends and I have not yet found one that knew how many. In fact is, it has just as many as it has fingers and toes—twenty. The milk teeth are furnished in the full set at about three years of age. The next tooth that comes in is the sixth-year molar. It has those in each jaw, both sides, above and below, four of them, but that is mistaken by a good many parents as a milk tooth. It is the first permanent tooth and it should stay with the child as long as it lives if it is taken care of, and it does more to give regularity and beauty and strength to the arch than any other tooth in the jaw, and yet it is mistaken by many parents and allowed to be pulled out. There is a crime in law called maimon, it means depriving the body of any member necessary for its defence, and I say, whoever pulls the sixth-year molar unnecessarily from the mouth of any child is committing the crime of maimon against that child and should be punished accordingly. (Applause.)

Another slogan I sound, and I would have it sounded so loud and clear that every ear in the United States and Canada should hear, is that a clean tooth never decays. You know filth and decay go together—they are twins. I would do that with the same persistence that old Cato used to sound his slogan. You remember Cato was an old man who learned Greek at eighty, and when asked why his statue was not among the other statues in the Roman forum said, I would rather have the question asked why it is not there than why it is there. He went over to Carthage when Carthage was in its glory and power and he came back to Rome fearful of the Romans prestige, and so on whatever subject he talked, on whatever topic, in whatever place, to whatever kind of audience, he concluded his speech always with "Carthage must be destroyed," and so I would conclude every speech I make, I would have as a thread running through all I say, "A clean tooth never decays." That may not be exactly true. Perhaps there are some physical conditions, some diseased conditions in which teeth do decay that are kept comparatively clean, but it is general enough to be given as a general truth, the thing that causes the destruction of teeth is filth.

I hardly know, Mr. Chairman, when to stop when I get started on this subject. We are learning what causes disease. We are learning that disease is not sent upon us on account of our sins, for our affliction. I think instead of saying when a child dies, "The Lord gives, the Lord has taken away, blessed be the name of the Lord," there should be an inquest held to determine who is or what

is the cause of the death of this child, this boy or this girl, this man or this woman. The God who made man knew how to make him, and he made him to live three score years and ten. If he doesn't live that time somebody is at fault. We have inquests only in case of what is termed accident, when we really know what causes the death. (Laughter.)

I was glad to see on the bill-board to-night that there is a movement on foot to determine the cause or the means of infection of the officers of the Queen's Own with typhoid fever. It should be found out. When the great water supply of the city is contaminated with the typhoid bacillus I say to you, it is murder in the first degree, and whoever is responsible for it should be made to suffer for it. (Applause.) A girl out in Kansas went to her physician with a sore on her lip and asked the physician the cause, and the physician told her that she had syphilis. She was horrified. Some smart men here say, we know about that. But, you don't know. They traced the cause, they traced the source to a public drinking cup. We laugh at the people of Kansas, but they are pretty wise. They passed a law in Kansas abolishing the public drinking cup. You can't find it in the schools, hotels or railway trains. There used to be a coarse joke when I was a boy about the man who went to the hotel and inquired for the hotel tooth brush. The man who drinks from the hotel drinking cup or from the public drinking cup is committing the same sort of sanitary sin that the man would be who used the hotel tooth brush. In fact, worse, because the tooth brush might be exposed to the rays of the sun, which is in some measure a germicide, while in the moisture of the drinking cup is kept alive the deleterious bacteria with which it is found to be infected. You know there are about twenty germs in the world if gotten rid of we would have a healthy world; death would come not as a robber, but only as a consoler; the wearied body would at last go back to the friendly dust, its native home. We can do much to bring about that time. The great white plague has done more to depopulate the earth than all the wars and pestilences and all the famines; it is a pestilence in itself. I was reading in one of your papers that one person in Toronto died every day from tuberculosis; ten persons in this province die every day from tuberculosis.

In Cleveland, at the opening of the oral hygienic campaign last spring, the leading papers said 11,000 people are suffering in Cleveland from tuberculosis. I suppose about the same are suffering in Toronto. Tuberculosis plays no favorites, it enters the cottage of the lowly, the mansion of the rich, and the palace of the noble, and wherever it goes it goes to kill. Sometimes it does its work quickly and sometimes slowly, but it counts in the statistics of the dead.

You remember reading in your Bible that, when the Lord hardened Pharaoh's heart and He would not let the people go, that

among the plagues that afflicted the Egyptians was the death of the firstborn, and the same book goes on to say, and there was not one house in which there was not one dead. How like the plague of tuberculosis that is ! The Israelites saved their firstborn because they sprinkled the door-posts and the lintels with the blood of the sacrificial lamb. But unfortunately there is no sprinkling of blood on the lintels and door-posts of our houses, which will cause the death angel of tuberculosis to spare and pass on. There is only one remedy : cleanliness, cleanliness, cleanliness. The Israelites celebrate the Feast of the Passover to this day. I would like to see a feast of cleanliness inaugurated in the world; the world cleaned up and made a fit place to live in; and I would like to know that in some future day there will be a celebration among the people, an annual celebration of this feast of cleanliness, to call to mind the time when the people in this ancient time got together and concluded to clean the world, clean out the malevalent bacteria, and make the world a fit place to live in. You can do it if you will. The time is coming when every prison and hospital and reformatory institution will have its dental department; attention will be paid to the teeth as elements of good citizenship. I know that every school board should have its dental member. Medical and dental inspection for our schools is coming, but you know, as a necessary corollary to mental education is brain with health. If you allow the one at the public expense, you must allow the other, because it is folly to educate the minds of the people in bodies that are unable properly to wield the mind. Let us make a strong body to go with the educated mind, and then we will see things done in the world. The time for dental and medical inspection in our schools is at hand. It may come in places as it has in Boston. Mr. Forsythe has devoted \$2,000,000 for a building and for dentists to see that the children of Boston, up to 16 years of age, have their teeth cared for. A man in London, England, has given \$1,000,000 to give dental attention at first cost to the poor of London. I look for a good deal from Ontario. As an educationist, I know something of Ontario. I know that its system of education, from the kindergarten to the university, has been a model and an inspiration to all of the States of the United States. There has not been a State in the United States that has a better system, if as good. I have faith to believe that, when the people of Ontario know the need for action, as shown in that chart, and as shown in hundreds of other charts in your province, that the Department of Education will get busy and do something. Dentists are rather modest. They should not be; they are in a noble profession and I want to say that, of all the forces arrayed in the defence of health and strength and beauty of the race, the dentist is easily in the front rank, for he stands at the gateway with the sword of exact physical and sanitary science, to strike off, or strike down and ward off the malignant destroyers that would enter the citadel of human life. I thank you.

Dr. Webster.—Gentlemen, we should feel proud, indeed, for having such an address as Dr. Dowd has just given us. We will ask Dr. Secombe to make a few remarks, as a member of the Board of Directors of the Royal College of Dental Surgeons of the Province of Ontario.

DENTAL EDUCATIONAL WORK IN ONTARIO.

W. SECCOMBE, D.D.S.

Mr. President and gentlemen. Since the last meeting of the Toronto Dental Society, I have been elected to the Board of Directors for the next two years. I desire to thank the members of the profession in the city, through the Toronto Dental Society for this honor, and to assure them that I appreciate it very much indeed.

Two years ago, the Ontario Dental Society appointed what is known as an Educational Committee. The President has asked me to speak to you, not only as a member of the Board but as Chairman of that Educational Committee. We had a vision of the need for dental education two years ago, but my only regret to-night is, that we didn't have the inspiration of the address which has been delivered to us to-night so eloquently by Dr. Dowd. I am sure if we had had the inspiration of that address, we would have gone on with greater vigor and more earnestness, and would have prosecuted the campaign which we have been engaged in much more intelligently than we have under different circumstances.

Dr. Dowd tells us he has taken for his cue in this campaign the thought of prevention, and that clean teeth cannot decay. That has been pretty much the watchword of the work which the committee of the Ontario Dental Society has been doing. In the first place, we endeavor to bring to the notice of the public through the press, through the physician, through the hospital, through the education bodies, through the teachers, the great need for a proper masticatory apparatus, in order that food might be properly masticated, and pointing out that it went hand in hand with good health. Then, in the second place we have tried to hold up the ideal, that diseased conditions may be prevented in the mouth. It is not so many years ago, that the dental profession was quite satisfied with the operative procedure. As our President outlined in his opening remarks, it is not so long ago when the dental profession was quite satisfied to repair lost tooth tissues, quite satisfied to replace the teeth which were lost; but, gentlemen, the conditions are different to-day, and the dental profession is not satisfied. It is satisfied only when they are approaching the idea of the prevention of tooth decay. The work of our committee, therefore, has been along this line, to try to hold up the idea of prevention.

When the Education Department of the Province of Ontario, were getting out a new text book a short time ago, they were kind

enough to submit to our Education Committee the chapter on the teeth in the Public School Physiology. The committee recognized, after reading that chapter, that if it was to be properly taught to the children in the public schools of Ontario, that the teachers would have to be taught, and therefore, they endeavored to have given in the different normal colleges in this province, lectures on the care of the teeth, lectures on oral hygiene and prophylaxis. To reach teachers who were not in training in these normal schools, resort was made to pamphlets. The Canadian Oral Prophylactic Association published a pamphlet, and this was distributed to the teachers. The committee of which I am chairman, went to the Agricultural Department in the province, and they very readily agreed to send out any literature with which we might supply them. I am very glad, indeed, to be able to tell Dr. Dowd that our Agricultural Department in Ontario means something more than the care of hogs, because the watchword of the Department of Agriculture in Ontario is anything of interest to the home. They have sent out a pamphlet to the members of the Farmers' and Women's Institutes, and sent it to the teachers throughout the Province, and also sent ten copies to each of the dentists for distribution to their patients, so that the work along the line of the teachers has been covered fairly well by this committee. In addition to that, we have endeavored to have lectures given to the nurses in training in several hospitals. It was found that such lectures would be greatly appreciated. Lectures were given at Stratford, Ottawa, Hamilton, Peterboro, and in other cities throughout the Province.

We have with us to-night, I am glad to say, the Honorable, the Provincial Secretary, who has charge, I think, of the public institutions in Ontario. I do not know whether he is going to speak to us or not, but if he does he might be too modest to tell you that, in the public institutions in Ontario, to some extent at least, dental care has been inaugurated. I believe resident dentists of Toronto periodically visit the asylums here in the city, and some of the other public institutions, and are paid for that purpose by the Ontario Government.

One of the most important, perhaps the most important sanitarium in Ontario for the treatment of tuberculosis, has written to the Ontario Educational Committee, and asked them to suggest in some way how they could have a dentist added to their staff, that he might care for the teeth of the patients. I had a personal talk with one of the members of the medical staff of that sanitarium, and he said to me, Why, we simply can't treat these patients for tubercular trouble unless we get their teeth into sound condition. He said we are endeavoring to treat them, and they can't even masticate their food.

These are only a few of the instances as evidence of the general awakening along the lines that Dr. Dowd has indicated. I am sure we all feel glad that we have in Toronto a Board of Education that

seems to be alive to the need in these matters, a Board of Education that has installed a system of medical inspection during the past year. I am glad, indeed, that this Board is also interested in the dental health of the children, as shown by their interest in this public lecture by Dr. Dowd.

We are particularly well situated in the matter of clinic, for the reason that we have the Provincial Dental College situated here in Toronto. The Dental College, to my knowledge, has never yet turned away a needy patient from the doors of that institution. We have never yet received one dollar, nor do we desire it, nor have we asked for one dollar from the public treasury. We have endeavored to look after the charity patients in this city, in so far as the College was able, and, in fact, we have been able to look after all the cases that presented themselves. But we must all recognize gentlemen, with the conditions that have been presented to us to-night, that a college without public support, a college which is merely conducting a clinic for the training of students, could not be expected to care for all the poor people in this city. The members of the dental profession are quite willing to bear their share of such work just as the medical practitioner is willing to bear his share of such work in his profession; but I believe that the wealthiest men of this province will not fail us, when they see the need of this work, and I am quite sure that there are men in Toronto who will prove just as generous as the gentlemen that Dr. Dowd has indicated, and when the need is shown to them, we will find the money will be forthcoming, and there will be established in this city, and in this province—because we must not think of Toronto alone—poor clinics, where the boys and girls who cannot afford to pay regular fees, will have their dental work attended to.

DR. WEBSTER : Gentlemen, we are particularly honored to-night in having with us the Provincial Secretary, the Hon. Mr. Hanna. I have great pleasure in calling upon the Hon. Mr. Hanna to make a few remarks in connection with this subject.

STRIDES MADE IN DENTISTRY.

HON. W. J. HANNA.

Mr. President and gentlemen, my remarks will be very brief. I brought Dr. McCullough and Dr. Hastings here, with a well-prepared speech in the hands of each of them, furnished by myself. They will, no doubt, do it greater justice in the delivery than I could. The one thought that is uppermost in my mind, in looking over these figures and this audience and the newspapers of to-day, is the wonderful strides that dentistry has made in my short lifetime. I think I can see three stages. The first, was when we all went to the corner blacksmith if we had to have a tooth out or anything of that kind done. Then, later on, a few of the most particular of us—and we were regarded as getting a bit over particular if we went to the dentist once every two years and had him look us over. And the third, is the advanced

state of the art at the present time. Why, I learn, on reading the newspapers of to-day, that it is almost dangerous to open one's mouth in front of a dentist, that he can take one squint at you and tell you, not only every sin you ever committed yourself, but what your father and grandfathers have done before you, and it is all sitting out there for inspection to the eye of every dentist who has really kept pace with the times. That makes it a dangerous thing, indeed, to stand before an audience of this kind, particularly for some of us. However, nonsense apart, your profession has certainly made great strides, strides that must be apparent every day to those who, by force of circumstances or otherwise, happen to take notice. I suppose it puts it fairly—I know it does put it as I heard it put the other night in a home in this city—it puts it fairly that it is to-day not so much a question of work to do, as it is good competent men to do the work. That was not so some years ago, if my recollection—not gathered from this city, but from a four corners outside of it—is correct. Now, it is to-day, and, I think, so appreciated by your profession. That those figures on the wall have a meaning to the children, as well as to the dentists themselves, I don't for one moment question. There is that parallel that Dr. Dowd observed on the making up of those figures. "Coincidences be curious things," and I fancy that those figures cannot help but have a meaning to the Board of Education of this city, and to the inspector of those schools, and should surely mean action on the part of someone from the parents on.

I am very glad to be here to meet you to-night. I am not here to say more than has been said by the previous speakers. As to the public institutions, we are doing some little; we are not doing very much. I noticed out at the prison farm the other day, that looking over the accounts, was a visit of doctors and dentists coming out to the farm, if you please, to look over and inspect the prisoners. I put both feet on that good and hard. I put it this way, that that prisoner can go to the dentist's chair just as readily as the dentist's chair can come to him, and we have arranged that up there with this inconvenience to the prisoners, that they make the trip instead of the dentist. (Laughter).

Dr. Webster. We are very glad indeed to have had the Hon. the Provincial Secretary speak to us, and now we will hear one of those admirable speeches which he prepared. I call upon Dr. McCullough, Secretary of the Provincial Board of Health.

TUBERCULOSIS CAUSED BY DEFECTIVE TEETH.

JOHN S. McCULLOUGH, M.D., Secretary of Ontario Provincial Board of Health.

Mr. President and gentlemen, I assure you I would very much prefer if the Provincial Secretary had made the speech for you instead of leaving it for me to do, and I think I shall make mine, perhaps, as brief as he did his.

I listened with a great deal of pleasure, indeed, to the eloquent words of Dr. Dowd, in describing the conditions which are found in the mouths of children, and to which a great deal of disease may be traced, and I had the opportunity of seeing the examination of these children by Dr. Webster and some of his confederates some days ago, when I saw the exact conditions which are figured before you on this chart, and I assure you, although from a long period in the practice of medicine, a good deal of it amongst children, too, that I was rather astonished to see the conditions were as bad as they are. There is no doubt at all, that children who are situated thus in respect to these conditions of the mouth, lose a very great deal in the way of aid to the nutrition and upbuilding, to make good strong, healthy children for this young nation. These parallel conditions to which your attention has been drawn by the physical condition of mouth breathing, and the impossibility of proper mastication, bear a constant relation to one another all along, as does the filthy, unclean mouth to the rest of it. No child that is unable, by reason of sore teeth, to masticate its food, can grow up strong and healthy, and there is no doubt at all that tuberculosis and other diseases have their entrance through these defective teeth, and thereby to the glands and the other parts of the body. This may be considered the age of preventive medicine, and when the medical profession finds itself so actively supported by the members of this other great profession, I expect that in the next decade we will see very large advances along the lines of prevention of diseases. It always seemed to me a strange thing that the dental profession was a profession apart from that of medicine. I wonder about it no longer, because the dental profession itself is becoming so large and so numerous and so active a profession all by itself, that I fear the medical profession would not be able to contain it any longer as a specialty. It is, in its relation to the physical make up of the body, a most important one. I suppose it is just as important, if not more important, in some respects, than many of the specialties in medicine; and I think that your Society is to be congratulated that you are taking some interest in the matter of the care of the health of the children in this city. You are setting a good example to the cities and towns in other parts of the province. Your work is very much to be commended.

I may say, with regard to the work which the Provincial Board of Health is doing in relation to the prevention of diseases, that we have a tuberculosis exhibit, which we are sending all over to the villages and towns of the province, to educate the people with regard to what is known as the white plague. We realize that the chief thing we can do in this respect, is to educate the people and keep educating them, just as you are doing in respect to these conditions described here. Your President has been good enough, on behalf of the Society, to offer me an exhibit, in relation to defects and diseases in the mouths of the people, so that I may place it

along with other portions of our exhibit, and show it therewith. I hope within a week or two to be able to show to the members of the Dental Society, and the members of the medical profession here in the city, the exhibit in another, and I think better and more accessible form, than that in which we have had it. Hitherto we have been sending the exhibit about from town to town, and unshipping it and setting it up in a hall or building, by that means losing a good deal of time in erecting the exhibit; and while it was quite effective as far as it went, we were only able to show it in the larger towns. I have been able, with the consent of the Minister, and with his approval, to be able to secure a large car from one of the railway companies, wherein the exhibit will be permanently placed, and by that means we can show it at large or small places, running it in at a siding at the railway station, so that the people who are, so to speak, more in the back woods, will be able to see it as well as those who are more favorably situated. When I have it all ready, I shall have much pleasure in having the members of the dental profession come and see it, and pass their opinions upon it.

Now, sir, I thank you very much for the opportunity you have given me to say these few words, and to assure you that I have enjoyed very much, indeed, the forceful and useful remarks made by your guest here this evening. (Applause).

DR. WEBSTER : Gentlemen, we have to-night the Medical Health Officer of the City of Toronto present with us and I have very great pleasure in calling on Dr. Hastings to make a few remarks in connection with this subject.

PROVIDENCE CAN NO LONGER BE BLAMED FOR PREVENTABLE DISEASES.

C. J. O. HASTINGS, M.D., Medical Health Officer, Toronto.

Mr. President, distinguished guests and gentlemen, I have appreciated more than I could possibly express, the address, the admirable address, the magnificent combination of Demosthenes and Mark Twain in many respects, together with the ideals that he has placed before us to-night, and many points of most intense value to me along the lines of preventive medicine. I am sure it is very gratifying to know that the dentists have become so self-sacrificing as to be willing to be almost suicidal to their own incomes. The medical profession have been working along this line for some time, and it is a lamentable thing that, with the exception of a few men like the Hon. Mr. Hanna, it is difficult to get members of Parliament very much interested in the value of a human life. Not long since, Professor Osler was visiting an old friend of his, and she said, among other sad experiences that she had had, Doctor, since you last called to see me, I lost a dear little one; Providence saw fit to take it away. He interrupted, and said, My dear lady, Providence had nothing to do with it; it was dirty milk. We, as

members of the medical profession, have been safeguarded, and those who should have been engaged in preventive medicine for years and years, have been safeguarded in it by the members of the Ministerial Association, who are always good enough to come at the last moment, and say that Providence sometimes sees fit to take the little lambs into the fold that the sheep may follow. The time has come when we can no longer throw this blame back on Providence; Providence will no longer be asked to shoulder the blame. We must place the blame where it belongs, and for those who die of preventable diseases, we, you and all of us are responsible and guilty of criminal negligence. A few years ago, a man was run down at the Bay Street crossing; the papers were all full of the statements the next day of the awful calamity. The Coroner's Jury brought in a verdict of criminal negligence on the part of the responsible parties. Why should we discriminate? Every man, woman and child that dies of a preventable disease that we have not endeavored to protect them against, places us in the same position as the responsible parties for that man that was killed at the Bay Street crossing. (Applause). I sincerely hope, I have great hope for the future, because I have heard much, and we have heard much, of the City Council of Toronto being beggarly, and not disposed to give sufficient money for prevention and safeguarding the lives and health of the people of the city of Toronto. I can assure you that has not been my experience since I have gone to the Hall. All that I have asked for I have received without one single dissenting voice. We will soon have equipped one of the best, if not the best, bacteriological and chemical laboratories in connection with the health department at the City Hall of any health department on the continent of America. (Applause.) We have been fortunate enough to secure as director of that laboratory a man who has qualifications and ability second to no man on the continent, and with that equipment and with the assurance from the Mayor and Board of Control and the Council that as long as we supply them the goods they will pay for them, we can certainly hope to do good things for the health and preservation and safeguarding of the lives of the people of Toronto. I thank you, Mr. Chairman, very much, indeed, for this opportunity. (Applause.)

Dr. Webster: It is gratifying for the Toronto Dental Society to have such expressions of a determination to improve the health of this city as have been given by the officer who has just spoken. We have now had this subject discussed from a health standpoint. We should like now to hear from some of the members of the profession of teaching or education. I will ask Mr. C. A. B. Brown to make a few remarks as a member of the School Board of the City of Toronto.

THE BOARD OF EDUCATION WILL DO ITS PART.

C. A. B. BROWN, Board of Education, Toronto.

Mr. President and gentlemen, you know that my teeth are almost aching after this and I am anxious to get away so that I can use the tooth brush. I have been a member of the School Board for twenty-eight years, and there is one man who has been identified with the dental profession whose name had not been mentioned to-night who I remember many years ago coming down before the old Public School Board and asking us to take an interest in dentistry, or in looking after the interests of the children's teeth in our schools. I refer to my old friend, Dr. Adams. I happened to be at Elizabeth Street School at that demonstration and a photograph was taken of the doctor examining the teeth of a little girl, and it must be gratifying for the doctor to know and for his old friends to know that he looked about forty years of age.

The Board of Education is willing to do everything we possibly can to further your interests. Of course we can't jump into a big expense all at once. I have been one of the pioneers for medical inspection. We have heard a great deal about medical inspection in the past year. Now, do you know how much money we placed in our estimates this year for medical inspection? And with that amount of money we are supposed to provide physicians, nurses and all the necessary paraphernalia to do the work thoroughly, cabinets for the schools, and everything of that sort. \$2,500 was the amount placed in the estimates this year to do all that. We have appointed two physicians, we have now in our employ five nurses; and I tell you this, gentlemen, as chairman of the Finance Committee of the Board of Education, we are doing it within the \$2,500. I want to thank the Educational Committee of the Dental Association for the work they are doing now, and they are doing it well. The committee that worked up medical inspection did their work well. Now what is the result? You have got the people worked up to that extent that they are willing to spend a little more money, and if I am on the board next year, and I hope I will be, I think we can put in about four times or five times the amount of money we put in last year, and probably more than that, towards medical inspection. Now, you can do something as a Dental Society. We want you to tell us laymen how we are to go about it, what we are to do. I went up there the other day and lost the morning to see some of my friends examining the children's teeth, and I tell you there were some awful sights there. I had no idea conditions were as bad as they were. We have some photographs that were taken that day and I don't think that many of the dentists around this room have ever seen anything like them before. Some horrible things were shown that morning at the Elizabeth Street School. If your Education Committee will tell us the way—I am speaking for every member of the Board of Education here—we can overcome this

difficulty so as to give good teeth to the children or help to keep them in fairly good repair, we will do everything we can to help you. (Applause.) Let us know how we are to do it, that is all, and I can speak for every one of my friends here that they will back you up. Don't strike too high. Let us educate the public first of all. As I say, you have got the public educated to medical inspection, now you are after them for the other.

In reading Dr. Beulich's book on teeth and on medical inspection in Germany, I think in Berlin alone they have five or six free dental clinics. They have them throughout Berlin alone for the children. I tried the other day to get one of our leading philanthropists to go up with me to Elizabeth Street School so that I might interest him in this very important matter. Unfortunately he was obliged to leave for Parliament the day before, or I know I would have had him with me that morning.

It was an inspiration for every man here to listen to Dr. Dowd to-night. I have known him for years. I hope and I know the speech he made to-night will only cement that good friendship and will bring me closer to Dr. Dowd than I have ever been before. I thank you, Mr. President.

Dr. Webster: It is very gratifying, indeed, to hear Mr. Brown speak in the terms in which he has in reference to the work which the Toronto Dental Society has undertaken. We feel quite confident that we can say to the Board of Education that if there is anything the dental profession can do they will only be too glad to give all the assistance within their power to help to educate the people, to help carry out the very best methods for getting good results in the question of oral hygiene.

I have great pleasure now in calling upon one who has been identified with educational affairs for a great number of years, one with whom you are all very well acquainted, one who is always in favor of the work which our good friend Dr. Adams undertook years and years ago when his labors were not always appreciated. I refer to Inspector Hughes.

ADVANCES IN PHYSICAL, MENTAL AND MORAL EDUCATION.

JAMES L. HUGHES, Chief Inspector of Schools, Toronto.

Mr. President, Mr. Dowd, and gentlemen, it is not necessary that the president should assure the Board of Education that they will do what they are asked to do, because the Dental Association of this city has been doing; they are not simply making promise, but they have been doing. I requested them some little time ago to arrange a system by which they could treat the poor children of this city whose parents are not able to pay for dental work, and they promptly arranged a system and prepared a card, which we supplied to our nurses, and they are using them still, and when in the schools they find cases that require attention

—and they find thousands of them—they go to the homes, and if they find conditions there such that in their judgment the parents are not able to pay, we give the card, and the Dental Association are treating these, and the cases the Dental College are not able to treat the gentlemen of this city connected with the Dental Association have agreed to do their share in relieving the pain of these poor children. I tell you, friends, those of you who are dentists, I don't believe you appreciate, I am sure the Board of Education does not appreciate the fact, that that chart, bad as it looks, can never begin to give you an impression of the exact conditions we find when the examinations are being made. I wish here to express my gratitude to the dentists of this city for what they have done, what they are doing, and what they have promised to do for us in the future. I think we ought to be more closely connected, and that is one of the joys I have to-night. Only think! For the first time in my experience of thirty-seven years I was asked the question, if a boy is away from school to have his teeth attended to will he lose his certificate. We issue a certificate at the end of every year to every pupil who has not been once late, who has not been absent except for sickness, and whose conduct has been uniformly good. I said in answer to that question, it has never been brought before the Board of Education, but I take the responsibility of saying "no" to that question. (Applause.) And I said so, especially for this reason, because the agitation has come in favor of attending to the teeth of the children and because the awakening has come on the part of the parents. I remember, seventeen years ago, Dr. Adams told me, and I would believe anything he would say, that he had found two cases within a week, children of medical men in this city, who had allowed the sixth-year molars to decay and be extracted, and they didn't know that they were not temporary teeth. But since the people have begun to awake our Saturdays are so thoroughly used up by the children that very few of them can really get attention and the rest of them would have to lose their certificates or else have their teeth go on aching. I have said to our Board of Education, and I say still, and I am going to say it till we recognize it, that the teachers who have to go to receive dental attention should not have a deduction made from their salaries for that any more than the teachers who have to go to receive medical attention.

The glory of my life in looking back over my past experience is that I belong to a race that is making progress, and the changes from the old types and conditions and the old prophecies in every department of our life are marvelous and are encouraging to us all. I remember, when Dr. Ogden mentioned the fact to me only a few days ago, when I brought Dr. Adams first before the Committee of Management for this city of the Board of Education they simply laughed him out of court. Afterwards, when Dr. Willmott came with Dr. Adams, the Board of Education united with others in asking the Legislature of this province to pass a law authorizing

boards of education to appoint dental inspectors. I have always held from the start—I never heard it so clearly put as Brother Dowd put it to-day—that the first step in medical inspection in the schools should be the dental department. I have said that for the last seventeen years. I believe in it absolutely, because it is the centre of it all, not only for the health of the child who has the awful conditions revealed there, but for the health of all the children in the neighborhood of that child, those sitting around him in the same room. I am glad it is coming so rapidly.

When your president came before our association with the chairman of your Education Committee and some other members some time ago and told us clearly and definitely the value of this, I requested the president to prepare a lecture to deliver to our teachers. He didn't do it yet, but I have no doubt he will. I am sure we are all grateful to the Dental Association for what they have done. I think Mr. Dowd does not often have a larger or more enthusiastic audience than he had this afternoon of the teachers of this city. I may say to the trustees that so many came out that in a hall that would seat 850 a considerable number were not able to get in and had to go away from the hall.

I am glad to be here to-night that I may have the privilege of meeting the new secretary of the Provincial Board of Health. I have the honor to be honorary secretary of the Association of Consumptive Sanitaria, and I know already, without ever having seen him, that the attitude of the department toward the whole matter of the saving of the children of the people from the white plague is in new hands, but the whole attitude is better than it was a short time ago. I hope it may continue to be better. That change of attitude has taken place partly through Dr. McCullough possibly, and partly through the Honorable Mr. Hanna.

I would like to say, Mr. President, that Toronto has recently established the first school in the world for children who are afflicted with consumption so that they may not, in addition to the other horrors of their condition, be allowed to grow up in ignorance; and if you are at any time able to go to Weston I think you will be gratified to see the condition in which those little children, most of whom the doctors think will recover, are being developed intellectually as well as physically.

I had another consumptive experience in this city. I got the School Board at one time into a very celebrated law suit. I refused to allow a boy to continue at school who had a discharging sore at the side of his chin. The parent took the School Board to court and we had a trial that lasted two days. Judge Rose was on the bench and he said at the close, after hearing the plea of the plaintiff's lawyer, that there was no law to prevent a child who had this discharging sore, which we proved was tubercular, from going to school, but he said, I thought very wisely, if there is no law there ought to be one, and I will decide in favor of the Board of Educa-

tion and suggest that that law be passed. Now that tubercular sore, discharging constantly, was caused by defective teeth, and, Mr. President, that was absolutely the plea that the prosecuting lawyer put in before that court in order to prove that we should not keep him out. They put in the plea that that discharging sore was caused by the teeth of that boy. It is perfectly true, as has been said to-night by Mr. Dowd, and by others, the cause of the spread of the tuberculosis was that very matter getting into the glands.

There is one extraordinary lesson there which I would like to draw your attention to, in which it shows 47 per cent. in large glands in one and 8 per cent. in the others, and that lesson to me is one of the most striking value. The evidence is on that chart which should be studied. I am glad that I suggested two classes of schools, so that we might be able to make comparisons and learn some lessons. Altogether, after being thirty-seven years in my present position and a considerable number of years in other positions connected with education in Toronto and elsewhere, the best thought in my life is that we have got past the stage when we are merely trying to cram knowledge into the minds of the children and pump it out on examinations and call that education. We have come to the position when we recognize the fact that the whole being is given to us for development, and our duty is to develop it to the best limit, to educate the intellectual, the physical and the moral; and to develop and produce the highest unity we can of those three great elements. So I am glad that these bodies are coming to their own, that we are recognizing the fact that the body is a matter of very great importance in the development of mankind, and I am glad to know even in universities in some places degrees are given partly on the physical condition of the individual. What does a degree mean? If it means anything it is a certificate of the qualification of that individual to perform his duty as a man or woman, and surely the physical development is just of as great importance in developing the power of the individual as any other development really is.

I cannot sit down without saying that there is another development which we are only awaking to, and one in which I take as much interest as any other. I am proud of the fact that the Hon. Mr. Hanna has given us, the first in Canada, an institution where young men from 16 to 30 are not treated as people to be simply punished because they have done wrong, many times brought up under conditions when it was impossible for them to have any other tendency than to do wrong. We used to blame Providence for it, then we blamed the Devil, when all the time it was our blame; we should have blamed ourselves for the condition we let those poor children get into. But, these young fellows now are treated decently, and the criminal who used to be confined in prison is now allowed to work freely up yonder near Guelph out of doors without any guards, without any rifles to shoot him if he starts to run away

—without any restrictions practically—allowed to work there freely and even to go away off to Guelph to the dentists. Think of allowing criminals at large! That would be the old statement; that will be the statement made in this city next week by certain men who are going to try to prevent the City Council of this city from urging the establishment of a kindred process for the development of the boyhood and girlhood of our city. What Mr. Hanna is doing so splendidly for the young men, treating them respectfully, treating them as men who have done wrong, not simply punishing them, but giving them the opportunity to return to lives of decency and manliness and honor—what that institution is doing for the men I claim, and many others in this city claim, should be done for the boys and girls, and instead of sending them down to punish them merely, or instead of sending them to institutions where a large number of boys get together and where one or two or ten out of fifty may pollute the whole lot, that they should be treated respectfully, and instead of going, as the law used to do in this city, to my knowledge, from institution to institution—when poor little chaps 12, 13 and 14 years of age, who had been sent to jail, got out and got employment, the agents of the law would go to these institutions and would say, Do you know you have a jail-bird in your employ?—instead of doing that and almost absolutely preventing the little fellow from ever getting a standing in society, or from ever recovering his position, or from ever getting into his life elements that were never allowed to get in before, by giving him the right hand of fellowship and providing means by which he could spend his evenings to advantage, by taking him into our schools or elsewhere.

There is another development which I hope Mr. Brown and the other members of the board will take up and that is providing places in our schools at night where boys can go and can study or read, or play dominoes or checkers, or have a gymnasium where they will have a respectable place instead of going on the streets. These boys should go into these public institutions of ours, which belong to the people of the city, and they should be used to train the boys and girls to higher purposes. I hope we shall have that.

I know, as you know, that yesterday the matter was brought before the Council by one of the leading members of the Council, and I know, and you know, that there are men in this city in institutions who will meet that and fight it to the death, simply because they stand still. The old idea is that a boy who does wrong should be punished and not saved. The distinction is so marked that I speak of it to-night, and I hope Mr. Hanna, I know he will, will give all the assistance he can for the development of that new work which shall make a basis for him for that great work which he is doing up in Guelph. I hope that this body will in every way go on, and not merely confine itself to its own department, but we shall be broader than our own and shall go out in our sympathy

for those young people and help to create public feeling which will make it impossible for any of the representatives of the old idea to keep back the progressive movement of modern times in regard to the moral training of those boys and girls who have been made criminals many times by being placed in institutions at the expense of the country, and at a very much greater expense than it will take to provide accommodation in our juvenile court, which we hope to get in this city. I am not interested merely in the physical or the intellectual or the moral, but in all three. In the physical you are doing splendid work. I hope the Board of Education and you will come into partnership more closely. The intellectual and a good deal of the moral work we are trying to do in the schools, but there is a lot of it that has to be done in other ways, and that juvenile court for the moral is, in my judgment, just as important as dental conditions, because moral conditions are just as bad, if you could analyze them, as those are.

Dr. Webster: I am rather inclined to think some of the members present have not recognized the perhaps most important part of that chart, which is the abscesses. Fifty-five per cent. of the children in one school with abscesses and pus exudations into the mouth; about 41 per cent. of those children swallowing that with their food. Just think it over.

I have great pleasure in calling on Mr. Levee, of the Board of Education of the City of Toronto.

DENTAL INSPECTION AS IMPORTANT AS MEDICAL INSPECTION.

MR. L. S. LEVEE, Board of Education, Toronto.

Mr. President and gentlemen, I wish to thank you very kindly on behalf of the Board of Education for calling on me this evening, and I may say I accepted your kind invitation which was sent to me by your secretary for two reasons, first, I wished to hear Dr. Dowd, I have heard so much about him. My second reason, Mr. Chairman, was, we have recently started medical inspection in our public schools and I thought probably some person or persons here this evening might outline some plan whereby dental inspection could be started. Certainly I have not heard anything along this line this evening. I feel confident if the dentists of the City of Toronto would get out and explain to the citizens of this city the condition of affairs as outlined by Dr. Dowd, and all work together, so to speak, that no doubt dentistry or dental inspection in the schools would become very popular.

I should judge, gentlemen, that the most important part of that chart is the last, "Number of children needing dental treatment, 99 per cent.," and the thought came to me while looking that over what a harvest the dentists of the City of Toronto will certainly have in the next few months.

I have been in many a gathering as a member of the Board of

Education, and you can readily understand we go about considerably in order to learn, but what struck me very forcibly this evening was the intelligence and the youth of the dentists of the City of Toronto. I was wondering what had become of the dentists who are practising in the City of Toronto, if there are any, who have reached the age of two score years, because it seems to me the dentists of the City of Toronto represent a very young class of men. Either their profession doesn't worry them or the older dentists of the City of Toronto are not with you this evening.

Now, Mr. Chairman, no doubt you have an object for holding this meeting, or having this banquet, and I want to say right now, as a member of the Board of Education, that while I have with other members supported medical inspection in the schools of the City of Toronto, after seeing that chart I feel I am in duty bound to say to the ratepayers that dental inspection for the schools is just as important as medical inspection. No doubt in a very short time the Dental Society will come before us and suggest an inspector of some kind, and I can assure you that I would support such inspector, providing the inspector in question is not a female.

Now, Mr. Chairman, I want to say this before I take my seat, and I speak for myself, and I also believe I speak for some of the other members of the Board, we want you to give us all the information that you can; we are open for the best we can give our children, and if that is the condition in the City of Toronto, that 95 per cent. of the children require dental inspection, taking an average of two schools, I say that it behooves the members of the Board of Education to do something and do so at once.

Dr. Webster: I may say to Mr. Levee that the dental profession of Toronto and the dentists individually and as a class are willing and anxious and glad of every opportunity to give addresses or show diagrams or use lantern slides; they are all ready for any educational work which can be done. I am sure such arrangements can be made. Charts, diagrams and lectures are being used all over the Province of Ontario for this very work, and if at any time any of the schools of Toronto, or any organization, desires to have any such lectures we can provide some person at pretty short notice.

I would like to call upon one other person who has been very much interested in the education of children and has shown a good deal of interest for a great number of years. I refer to Mr. Kelso, who has the care of the neglected children of this province.

DENTISTRY AMONG THE NEGLECTED CHILDREN OF ONTARIO.

MR. J. J. KELSO, Toronto.

Mr. Kelso: Mr. Chairman and gentlemen, this is a very enjoyable occasion to me because it recalls many pleasant memories. When I was a boy I had the misfortune, being Irish and a good fighter, to break one of my teeth in one of these conflicts. I sought

our good friend Dr. Willmott away back over thirty-two years ago, and he and I have been very staunch friends since, and having enjoyed this friendship and gone through his skilful hands, you will not be surprised at all that I am very deeply interested in this problem of the dental care of the teeth of the poor children.

When I was appointed to the position I occupy now Dr. Adams sought me out, and he and I soon found we were very congenial on this point, and at his suggestion I called a public meeting over sixteen years ago to discuss this problem, but received very poor support. We had ten people come to the meeting, and they said, Why, Kelso, you are just playing into the hands of the dentists; you are just trying to put money into the hands of the dentists; you will have to stop it. There are some great reforms that have to wait some time. Some of us can see a little further than others, but you can't get the whole public to see with you, and I rejoice that the time is coming when every child will receive the care that it requires. I have often been pained when little children have been sent to me from different parts of the province. One of the first things I ask them is, Have you ever had the toothache? And I have seen them brighten up. "Oh, yes, sir, we have the toothache all the time nearly." I have said, well, if I can help it you won't have it very much longer; and I have, as far as I could get money to do it, sent the children to dentists, and I have encouraged in every possible way Children's Aid Societies of this province to send the children to dentists before they send them out to foster homes in the country. I hope to do a great deal more and to advocate a great deal more of this kind of work being done in the future.

I am glad to be with you to-night. This is the ushering in of a bright day, not for this city alone, but for the children of the province and the children of Canada. (Applause.)

Dr. Webster: Gentlemen, before calling upon Professor Dowd to close with any remarks he wishes to make I would like to ask any person who wishes to make any remarks upon the subject akin to what we are discussing to-night to do so now. I presume and expect there are several men here that desire to speak.

NO SELFISH MOTIVE.

A. W. THORNTON, D.D.S.

Mr. Chairman, there is just one phase of this question to which I would like to draw very brief attention. Two or three of the gentlemen who have spoken have drawn attention directly or indirectly to the last item of the chart, "Number of children needing dental treatment, 99 per cent. of those examined," and almost insinuated it would be a good thing for the dentists because these children would have to come to their offices to receive treatment. Now I want, for the sake of those who are not dentists here, to disabuse their minds of that fact. The men who are inter-

ested in this work are not in any way interested because of any pecuniary gain they hope to reap from it. The gentlemen interested are busy men, and they all know, if the laity doesn't know, that there is no work which comes to our offices that pays us so badly as the work which we do for the children. But, these men are interested. It is said that we are a diffident, somewhat bashful crowd of men, and it is true, for the man that works hard at the dental chair, or even if he doesn't work very hard, if he works at the dental chair all day is not very well able physically to enter into the political arena or any of the other philanthropies of a large city, but we are willing to do what we can for the child in order to promote a better citizenship, work we can do best as dentists without any thought of any gain that will come to us whatever. I want to say further that the work which is being done along educational lines in this city is being done by the busiest dentists in the city; the lectures that are being given in the hospitals, the lectures that are being delivered in the schools, and that are still to be delivered in the educational institutions of this city are not being delivered by men who are looking for advertising or are looking for practice to come to them as a result of this work. We do not pose as glorified philanthropists, but we are citizens deeply interested in the best welfare of this country, and we believe that the best citizenship, as has been very ably pointed out to-night, is only possible when men are well physically; and as dentists we are willing to contribute our little quota to this end. Mr. President, you will remember when you and I were in Chicago last year Dr. Evans, the Medical Health Officer of Chicago, drew the attention of that gathering at the very commencement of it to the fact that when children were taken to the isolation hospital there that very often after they were sent home the disease for which they were in the hospital was communicated to the younger members of the household, and that fact puzzled the physicians of Chicago for a long time until they discovered that the germs of the disease were carried and maintained by and in the carious teeth of the children. As the duty of the State was to provide every child with an education in order that he might make the most and best of life, so in order that that education might be maintained by the child it was absolutely necessary that the physical condition of the child should be put at the very best, and that this was impossible unless the mouth conditions were such as to bring this about, and he said we are trying in Chicago to give every boy who is raised here a show for his white alley.

DENTAL INSPECTION IN NEW YORK.

DR. BRYANS.

Mr. Chairman and gentlemen, although the hour is late I should like to take the opportunity of saying a word or two. In New York I had the opportunity of talking with Dr. Baker, who

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is head of the department of child's hygiene in New York, and she told me that they had discovered last year 155,000 children who had defective teeth, but they had only been able to get 20,000 of them looked after and that was through the philanthropy of one man. You dentists in Toronto have shown a better spirit, which is highly appreciated by the public. I heartily endorse what the last speaker has said about the spirit shown by the dentists. But Dr. Baker said, what is the use of dental inspection if we find 155,000 children with defective teeth and can only get 20,000 attended to? We are not anxious to have a dentist go in and find still more defective teeth until we can have these looked after. That is a fair and practical statement. I would like to remind you of this, they can't all go to the Dental College in Toronto. That is absolutely impossible when you consider the extent of this city. What the Board of Education are thinking about is this, they would like to establish places in the schools scattered over the city at convenient distances where this work could be done, and they are waiting to put some money into it. The members of the Board are willing to put all they can into it as the public are educated up to it. Mr. Brown told you we had only \$2,500 this year and he hopes we may get five times that next year. I hope we will have ten times that. We are waiting to put some of it into dentistry, but we would like you to tell us what is the cost to equip one of those places and what it would cost to carry it on. In a medical clinic the physician **only** gives his time. The dentist not only has to give his time, but material, and that adds to the cost. We would like you to suggest something along this line. We appreciate the excellent work you are doing.

Dr. Webster: We are very glad to hear from Dr. Bryans upon this subject, but dental inspection is, as he says, not of very much value if that is all that is done. But, let us look at the chart. In Elizabeth Street School six and a half teeth are decayed of each child and five and one-eighth teeth in the Church Street School, almost the same number, but look at the other conditions, look at the number of abscesses, look at the unclean conditions and all those things. Why? One is in a class that has some dental education and the other is in a class which has none. Would there not be an opportunity for a man who would be able to go out and give instruction in health, education and encouragement in that line even if he could not fill the cavities? That would be of value.

Dr. Dowd: Mr. Chairman, I notice a little jealousy as to pedigree in the way of time between the regular physicians and the dentists. I have a word to say for the regulars, the M.D.'s, because we read about them in the Bible. I think they antedate the dentists somewhat, because we read in the Bible in one place that Asa was sick and he sent for a physician, and Asa slept with his fathers. I quote the Scripture on behalf of the M.D.'s.

Dr. Johnston said every sick man is a scoundrel. I give that

to you secretary, who is in charge of these penal institutions. You know a sick man is not the most kindly man to get along with. I think in these institutions, especially those that care for the waifs, nothing better can be done toward making them over again than by beginning with the oral conditions and reconstructing, as far as possible, the mouth. You know it is the business of the state to take a good many of the malformed mouths that you meet and straighten them up. It is an awful handicap for a girl to go through life with a protruding upper jaw when a dentist can take her face and make it over again into regular lines of beauty.

Another thing, in the matter of expense in this connection of caring for these children Dr. Beulich, of the Russell Sage Foundation, said two decayed teeth will keep a child back six months in his school course, that is a little over half a year, and a case of adenoids a little over a year. Now, your inspector here will be able to make figures, and I am sure those figures will show, from an economical standpoint, that it is money in the pockets of the people of Toronto to care for the children's teeth.

Mouth breathing has been mentioned here. I read somewhere, and it has been confirmed to me, that an open mouth means a closed mind. You find one of these children in the schools breathing through the mouth and they are not bright in their studies, they are behind in their classes. If you are going to help in your mental education take care of the physical education.

The worst thing I see there on that chart is the putting of pus into the alimentary canal. I was talking to the Saginaw High School about that one day and I told them in one of the institutions at Finlay, Ohio, 47 cases of putrescent pulps were found with discharging abscesses into the mouth. I pictured what it meant to mix it with the food and take it into the alimentary canal and infect the whole body, and one girl gave a yap and she went back in a dead faint. My boy said, that's just the way with father, it always did make me sick to hear him talk. (Laughter.)

But, jokes aside, I want to say this, so far as Toronto is concerned I know the Toronto School Board, and I know they are willing to do anything that is right, and any school board is braced up by public sentiment. These members of the School Board are all coming up for re-election and public sentiment will affect the action of the School Board. Of course, it has got to be based upon sound sense. The School Board is willing to do and you are willing to do. I have a suggestion to make—that this Society appoint a committee to confer with the School Board as to the best means of meeting these conditions that are found to exist in these schools. I know that the Toronto School Board will respond to any reasonable demand that is made upon them and I know the dentists are willing to do what is reasonable. As to saying anything further, I feel I can best illustrate your position by telling you a story. A family moved from the country into the city. City life was new. The

mother said to her little child, who was invited to a party of her fellows: Now, I will tell you how I want you to behave. You go to that party and if they invite you to have something at the table say, Yes, please, and when they give it to you say, I thank you, ma'am. If they bring it around again say, It was very nice, a little more, please; I thank you, ma'am. If they should bring it a third time and you wish more say the same thing. The little girl went to the party. She came home, and her mother said, How did you get along? Well, I think I got along all right. The mother saw something was bothering the child and she said, Tell me about it, Mary. Well, I will tell you, mother. The first time they brought me something I liked it very much and I said, Yes, thank you. When they came a second time I said, A little more please, it was very nice, I thank you. When they came the third time I said it was exceedingly nice, a little more, please, and when they put it on the plate I said thank you; and a woman behind said what a well mannered little girl that is. But, mother, they brought me some the fourth time and I didn't want any more, I had had enough, and you didn't tell me what to say then, and I thought of papa, and I said, Take the damned stuff away, I have had enough.

Mr. Waldron: Dr. Dowd said to begin with the babies in keeping the mouth clean. How can we get at the families before they come in the school? We have hundreds and thousands of them in the city to-day and we are preaching to the fathers and mothers all the time and still they will come with their teeth level with the gums sometimes. Is there any way we can get still nearer to the source of the trouble?

Dr. Webster: There isn't any doubt that the physician meets every parent and it is the duty of the physician to give such instructions as he can as to the care of the children's teeth. We have now come to the close of our evening session and we have had great pleasure, I am sure, in having heard so many admirable speeches and so many open minds on this important question.

Dr. Willmott: Mr. President and gentlemen, the hour is very much too late to trespass upon the patience of this audience any longer. I want to say, however, that I have listened with very great pleasure not only to the remarks of Dr. Dowd, but of all the other gentlemen that have spoken. I think this evening marks a new era in the relation of the dental profession to the public. Most of us, I presume, have felt in years that are gone by that we were not altogether appreciated, we were looked upon as a class of men who were simply trying to earn a living from other people. I think the time will come when we will hold something of the relation to the public that is held by the medical profession, and that is, while we make a living out of the public we are giving to the public a service which to them is more valuable than the fee which is paid to us.

I remember very well the evening that I went with Dr. Adams, at his request, to meet the old School Board to present this matter of

school inspection. I remember that the line of argument that I used on that occasion was, that as preventive medicine was coming to the fore there was no field anywhere that at all compared in its breadth and in its opportunity for preventive medicine as in the treatment of the children's teeth, and for this reason, that from five to eight and ten years of age was the period at which physical development took place, and that if it was not properly proceeded with at that age it was not simply retarded, but it was prevented; and I called the attention of the Board to this fact that the children of the laboring class, the men and women that were doing the hard manual labor of this city, in all probability would not be able as they grew up and came to take their places, if it fell to their lot to do hard manual labor, to do the same amount of labor their parents had done. Since that time I have seen no reason to change my opinion. One of these schools is composed mostly of foreign children and are children of men who to-day are doing the hard manual labor of this city, and I have no hesitation in saying, from what I have seen of the children of some of these people in the office and from what I have seen of them on the street, they will never be able to do the hard manual labor their parents are doing to-day, and they will fail to have that physical ability because their physical systems are not developed on account of the condition of the oral cavity. I don't think the importance of this matter can be exaggerated at all, and I am very much pleased it is coming to the ear of the public and that they are taking notice, and that the public press are giving some publicity to these matters. Conditions are very greatly changed since those early days when Dr. Adams tried to urge his views not only upon the School Board but upon other people.

I think this audience ought not to disperse this evening without having an opportunity of conveying to Dr. Dowd, as the gentlemen who have had the opportunity of speaking already have conveyed, their appreciation of the address which he has delivered before us to-night. I think we have all listened not only with interest, but with profit. I think those of us who have some views in reference to the responsibility of the state for the physical well-being of the city will take courage and look forward more hopefully in this direction, at any rate, than in the past.

I have great pleasure in moving a hearty vote of thanks by the members of the Toronto Dental Society and the other gentlemen who are present to-night be tendered to Dr. Dowd for his very valuable address.

Dr. Hume: I think our worthy dean has expressed the sentiment of the members of this Society and I would beg leave to second the motion that our heartiest thanks be extended to Dr. Dowd for this interesting address.

Dr. Webster put the motion, which was carried amid prolonged applause.

Dr. Dowd, in replying to the vote of thanks, said: I want to say that I appreciate this vote of thanks. There is no place I love any more than I do Toronto. I see Hughes and Wilkinson and the boys I used to know, and I know they are doing a good work. I lived here for ten years; my children were educated in the public schools and in the collegiate institutes of this city, and my daughter is a graduate of the university. To show a university education doesn't spoil a girl, she is out on the desert six miles from Phoenix, Arizona, with her husband, running a sanitarium. She has sixteen tents and an administration building and her university education fits her for being matron of that institution better than she could be fitted in any other way. So there is always a warm place in my heart for Toronto, and I appreciate this vote of thanks.

DENTAL INSPECTION OF TWO SCHOOLS IN TORONTO.

By A. E. WEBSTER, Toronto.

Early in the year a committee of dentists met the Management Committee of the Board of Education to talk over what might be done to improve the condition of the teeth of the children attending the public schools. Nothing of immediate value came of the conference except perhaps an appreciation by the Management Committee of the earnestness of the profession. Before anything could be done the Management Committee had to be seized of the necessity. It never is enough to say that the children in some far off town or country have bad teeth and therefore the children at home have bad teeth and should get attention. To bring the matter home the Toronto Dental Society undertook a plan of campaign which has gained the attention of the public, and especially of the Board of Education. A committee was organized with the approval of the Educational Committee of the Ontario Dental Society to assist in carrying out the campaign. This committee has several sub-committees, each busy in its own sphere, but all having the same aim, viz., "Directing the attention of the public to the value of the human teeth and clean mouths as factors in public health." The Committee on Publicity paved the way for what followed by interesting the press of the city. Copy was supplied and many editorials were written on the subject. The other sub-committees had interested the provincial and local health departments, the hospitals, the nurses' training schools, the public school teachers, etc. A pamphlet recently issued by the Provincial Agricultural Department did much to arouse an immediate interest.

The Committee on Public Schools made arrangements with the Board of Education to examine all the children in two public schools on condition that the examination charts when completed

might be turned over to the inspecting nurses and that those children examined who were unable to pay for dental attention should be taken care of. The method of conducting the examination was left in the hands of those dentists who volunteered to make the examinations. Twenty-eight dentists were required to make the examination of the two schools chosen by the chief inspector. One, Elizabeth Street, among the foreign children, the other, Church Street, among the average Canadian children. A good deal of expedition in the work was desired so as not to disturb the classes any more than possible and also get the report ready in time for the meeting of the Toronto Dental Society, which had fixed its date.

The Committee of Examiners prepared the following chart, which was used, and from which the final results were compiled:

EXAMINATION CHART.

School	
Grade	
Name	
Age	Sex
Birthplace	
Physical Condition: G.....	F..... P.....
Breathing	
Malocclusion: Yes.....	No.....
Power of Mastication	
Condition of Mucous Membrane	
Enlarged Glands	
Condition of Mouth: Clean.....	Fair..... Unclean.....
Number of Permanent Teeth Present	
Number of Temporary Teeth Present	
Number of Permanent Teeth Lost	
Number of Temporary Teeth Prematurely Lost	
Number of Permanent Teeth Filled	
Number of Temporary Teeth Filled	
Number of Cavities: Temporary.....	Permanent.....
Condition of 1st Molars: Cav.....	Filled..... Lost.....
Abscesses (Number)	
Pus Exudations	
Pain. Yes.....	No.....
Total Number of Teeth Defective.	

REMARKS:

Two factors carefully considered were: First, the examinations must be done so that no criticism could be made of its thoroughness, of its being compulsory upon any child, or of its aseptic precautions. Second, no information concerning the condition found should be given to the children.

Two dental chairs were placed in each school. Each examiner was equipped with four mouth mirrors and four explorers, a pan of sterile water, a pan of a ten per cent. solution of formaldehyde. As

a mirror and explorer were dropped into the solution the nurse removed a set to the pan of sterile water, where the examiner got them for the next patient. A basin of sterile water and one of bi-chloride solution were used in which to wash the hands after each examination. An abundance of sterile towels was supplied.

Each examiner had a dental student as a clerk, who recorded his findings on the chart. Two nurses were present who looked after the instruments and prepared the children for examination. Each child came to the chair with a chart in hand with his name, age, grade, sex and nationality already upon it. The highest number of children examined in two hours and a half (which was the time each examiner worked) was fifty-two; the lowest thirty-three. The report of the total results can be found upon another page of this issue. A copy of each chart will be kept in the Library of the Royal College of Dental Surgeons, where they will be available for the compilation of data of scientific value.



ONE OF THE EXAMINATION ROOMS.

During the examination the press sent representatives to see what was being done. Many of the dailies featured the importance of the work on the front pages and wrote editorial leaders. During one forenoon the Secretary of the Provincial Board of Health was present, the Chief Inspector, Mr. John Ross Robertson, Mr. C. A. B. Brown of the Board of Education, Dr. Bryans, chairman of the Committee on Medical Inspection of School Children; Dr. Conboy, of the Board of Education; representatives of the press, Miss Rogers, Chief Nurse of the Public Schools, and several representatives of the dental profession and the medical inspectors of the

public schools. The exhibition of the mouths shown elicited expressions of surprise and astonishment. Photographs were made of quite a number of the cases presented.



Just while the press and the public were taking so much interest in this matter the Executive of the Toronto Dental Society had arranged for an address to be delivered to the teachers of the City of Toronto by John W. Dowd, former citizen of Toronto and past Chief Inspector of Schools, Toledo, Ohio. This address was of intense interest, the hall, which seats eight hundred and fifty, was crowded to the doors and many turned away. If the public had been admitted Massey Hall could not have held all who wanted to hear the address. Many prominent citizens who were invited looked up the officers of the Society to thank them for the privilege given them of hearing the address.

In the evening the Society gave a dinner to Dr. Dowd, a report of which appears in this issue. The Mayor, the Board of Education, the Provincial and local Health Officers, the Minister of Education, the Minister of Agriculture, the Provincial Secretary, the inspectors of the public schools and many other prominent citizens were invited guests of the Society. The guests were enthusiastic in their expression of appreciation of the work undertaken. It was the largest meeting of the Toronto Dental Society ever held.

If one could dare to predict from the expressions of those who spoke at the dinner and privately to the officers there would be a dental inspector in the public schools of Toronto before many weeks.

Proceedings of Dental Societies

HAMILTON DENTAL SOCIETY.

Reported by DR. J. L. KAPPELLE.

The monthly meeting of the Hamilton Dental Society was held on Monday evening, November 14th, at the Commercial Club. After luncheon was served to a large turnout of members the President of the Society, Dr. A. V. Lister, introduced Dr. Thornton, Toronto, who read a very clever paper on "Crown and Bridge Work," to which was added the doctor's remarkable powers of oratory and persuasion. At the conclusion of the paper the members indulged in a long and serious discussion of the different methods portrayed by the learned guest of the evening from which much valuable information was brought to the minds of the younger members. After a very hearty vote of thanks was tendered Dr. Thornton the meeting closed with the singing of the National Anthem.

MILLER MEMORIAL FUND.

TORONTO REPRESENTATIVES

Richard G. McLaughlin, chairman, John A. Bothwell, Sec, Treasurer, Horace E. Eaton, G. S. Caesar, Arnold D. A. Mason. A. F. Webster, A. E. Webster, Andrew J. McDonagh, W. G. T. Spaulding, C. R. Jordan.

The Dental profession in Toronto have subscribed wonderfully to this fund. It has now reached the four hundred dollar mark and the committee are aiming to make it Five Hundred Dollars in order that Toronto may favorably compare with any city of its size on the continent.

We feel that some who desire to have not yet subscribed and the committee are anxious that these mail written checks or subscription blanks to the Secretary at once. Every man ought to be represented no matter how small the amount.

J. H. BOTHWELL, Sec. Treas.
26 College St.

SAULT STE. MARIE DENTAL ASSOCIATION.

The dentists of Sault Ste. Marie have organized an association to be known as the "Sault Ste. Marie Dental Association." The object of the association is to further the cause of dentistry in this district. At our first meeting the secretary was authorized to purchase 500 copies of "The Teeth and Their Care" for distribution to patients. The officers of the association are Dr. J. A. Shannon, President; Dr. H. F. Goodfellow, Sec.-Treas.

Correspondence

Editor of Dominion Dental Journal:

Dear Sir,—In the November issue of the Dominion Dental Journal appears an article on “Comparative Values of the Different Silicate Cements,” giving out of mouth tests.

Out of mouth tests of silicate cements have proven to be very unsatisfactory generally, due frequently to omission of some element constantly found in mouth conditions. This difference sometimes has appeared so great as to be entirely misleading. The use of vaseline or cocoa butter on strips or instruments to form filling or remove excess, while plastic has been almost entirely abandoned in Asher enamel work in the States. This method very generally destroyed the characteristics of the filling material, so that defects of filling were found to be the effects of a dangerous operative method rather than pointing out weakness of material.

Dr. Cavanagh advises use of this abandoned method, which the writer never believed in, or used, which makes it valueless to discuss details, while there is a radical difference in principles controlling the operation.

I should differ just as decidedly with some claims of qualities of Ascher enamel as shown by mouth work in contrast with out of mouth tests given by Dr. Cavanagh.

The successful workers, with almost no exceptions, remove all excess of filling by grinding after safely crystallized. This permits insertion of filling with clean instruments without any oily surfaces to prevent stickiness or remove excess.

Stickiness of instruments is easily controlled by removing with bleached muslin (no starch) or Red Cross napkins, and carrying material to cavity with small bone spatula (A.) considerably reduced in size.

Materials while in bottles should be given much better care than they receive generally. Improved technique and a more thorough understanding of materials has almost entirely corrected failures of earlier methods.

Yours truly,

Chicago, Ill., 11, 29, 10.

C. M. BALDWIN, D.D.S.

Dominion Dental Journal

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No. 12

OUR FRONTISPIECE.

It is fitting that this issue of the Dominion Dental Journal, which contains the reports of the work done in the inspection of the public school children of Toronto, should have as a frontispiece a picture of Dr. J. G. Adams examining a child with a sinus exuding pus on the face as a consequence of defective teeth. Dr. Adams began to advocate the care of the teeth of the children of the public schools of Toronto thirty-eight years ago last June. Since that time he has given up his life to caring for the teeth of the poor. He has written many books upon the subject. He has interviewed Boards of Education, Ministers of Education, Prime Ministers, and Public Health Officers. Through his work the Public School Act of Ontario has been amended. Inspector Hughes, of Toronto, says that the people of this city will some-day erect a monument to his memory.

INSTRUCT THE NURSES.

The Toronto Home Journal makes the following comment on the publication of the Bulletin on the "Care of the Teeth" recently issued by the Department of Agriculture of Ontario.

"The publication of this bulletin is peculiarly timely for Toronto, which has just embarked on a system of medical inspection of schools. There is a staff of nurses who ought to be well instructed as to the care of the teeth in order that they may correctly and usefully inform teachers about the hygiene of the teeth as well as of the mouth generally. These nurses report conditions to the Board of Inspectors, and cases calling for expert attention and perhaps treatment are then handed over to the medical supervising officers. Didactic hints as to the necessity for and the advantage of proper and not difficult precautions may be made very much more impressive and effective by the possession of accurate knowledge of the subject, even if it be only general and non-technical. In bad cases the parents should be at once notified so that the growing child may have the advantage of his ordinary evolution to help him out of the worst of his childish troubles in this part of his body."

PAMPHLETS ON DENTISTRY WHICH CONTAIN ERRONEOUS TEACHING.

It is important that any instruction on the teeth which is intended for public reading should have the sanction of those who have given this subject some special study. Several pamphlets and rules for the care of teeth have come to hand which contain matter of doubtful value and some which is decidedly erroneous. While the bulk of the matter is correct and the advice sound, the pamphlets would have been much better if they had been carefully gone over by some one or a committee who had made a study of the subject. In a pamphlet published in Montreal and sent out under the name of a dentist appears the following paragraphs:

EFFECTS OF ACIDS ON THE TEETH.

Acids decompose the carbonates or lime salts, and when present in the mouth are a source of constant danger to the teeth, as they attack the lime structure, which in time breaks down, and thus we have decayed teeth.

Acids enter the mouth in many different ways, viz:—

By decomposition and fermentation of foods present in the mouth;

By acid drinks, medicine and acid fruits;

By acidity of the stomach, and by the unnatural acidity of this saliva.

The preventative for the first is, necessarily, to have absolute cleanliness: for the second, to at once rinse the mouth with some antacid. Acidity of the stomach and saliva must receive the attention of the physician and dentist.

These paragraphs convey the idea that decay of the teeth is a solution of the enamel by an acid which is free in the mouth. It has been abundantly shown that an acid free in the mouth sufficiently strong to dissolve the enamel would have a decidedly deleterious effect on the soft tissues. It has also been shown that decay of the teeth occurs where the saliva is decidedly alkaline. Decay of the teeth must be explained on a different basis than the mere acidity of the saliva. The author should know that decay begins on those surfaces of the teeth where a dental plaque may become attached to the tooth and not become disturbed, and that under this plaque is developed the acid which dissolves the tooth structure. In this way the acid may become sufficiently concentrated to dissolve the lime salts. Such facts have been demonstrated and should appear in a pamphlet which attempts to explain the cause of tooth decay. The author conveys the idea that if the saliva were made alkaline by a mouth wash the teeth would not decay.

“As the density of the enamel and dentine differ, the contact of very hot drinks or food produces an unequal expansion, which causes the enamel to crack. The presence of any metal filling in the teeth adds to the danger because of the difference in contraction and expansion between the metal and tooth substances.”

This statement has often appeared in dental literature, but up to the present time no experiments have been made to support the theory, while there have been experiments made which tend to disprove it.

“Persons become so skilled in the use of floss silk that they can run it between all the teeth in a few minutes. When it sometimes happens that a particle of food fails to become dislodged, if a small double knot be tied, and the silk slipped in between the teeth at a point about an inch from the knot, it will be found upon

gently pulling the silk sidewise that the bit of food will come with the knot."

It is doubtful if patients should be advised to use floss silk between the teeth at all, much less to draw it through with a knot on it.

In the last paragraph of the pamphlet appears the advice that patients, to avoid the decay of the teeth, should see the dentist every six months. The modern view is that patients should be seen much more frequently than once in six months. See Dr. H.A. Kelly's article in this issue. Some of the other pamphlets to hand are deserving much more criticism than the one here mentioned. Much of this article is excellent.

ELECTION OF MEMBERS OF THE BOARD OF DIRECTORS OF THE PROVINCE OF ONTARIO.

The result of the Election shows that the only change is in District number four where Dr. R. B. Burt resigned and Dr. Donald Clark, of Hamilton, was elected without opposition. In District number five A. M. Clark, of Woodstock, was elected over F. E. Bennet, of St. Thomas. Members, John Robertson, G.C. Bonycastle, Wallace Seccombe, Donald Clark, A. M. Clark, H. R. Abbott, W.J. Bruce, J. B. Willmott, Representative of the faculty of the school.

FOR SALE—A well located and Established Practice in Toronto. Rent low. With or without full equipment. For Particulars address Box 5 Dominion Dental Journal 53 College St. Toronto.

Editorial Notes

Dr. Frank, who practised in West Toronto, is now in practice in Tottenham.

Laval dental infirmary, Montreal, is used for inspecting the teeth of the school children.

The Whitby Gazette writes an excellent editorial on the importance of the care of the teeth.

St. Luke's Hospital, Montreal, has a free dental clinic. 6,424 children received treatment last year.

Dr. Emerson Henderson has opened a dental office in the Cosmopolitan Hotel at Coleman, Alta.

Mr. R. A. Rooney, an undergraduate of the R. C. D. S., is completing his course in Chicago, Ill.

Dr. McQueen, of Edmonton, secured a section of land by sitting on the steps of the land office during a whole night.

The New Method Dental Parlors of Winnipeg have brought action against the editor of "Live Wire" for libel.

A Brockville dentist has been awarded a contract of building a concrete breakwater in the St. Lawrence River at Brockville.

At a recent meeting of the Toronto Socialistic Party a resolution was passed asking the School Board to provide free dental treatment for all the school children of Toronto.

The lacrosse players of the New Westminster team presented the management with bills amounting to seventy-five dollars for dentistry which was necessitated by accidents in the game.

The annual meeting of the National Institute of Dental Pedagogics will be held in Washington, D.C., December 27th, 28th and 29th, 1910.

John Q. Byram, President.

There are fourteen medical inspectors of the school children in Montreal and not a dental inspector, in face of the fact that of the diseases reported over ninety per cent. are dental or of dental origin.

Two thousand children in the Toronto schools have been referred to their family dentist and eight hundred to the family physician. This is about the relative necessity of a dental examination to the medical examination.

In Philadelphia the City Council has given three thousand dollars to help defray the expense of caring for the teeth of the poor. A suitable infirmary has been fitted up in the City Hall and the dentists have agreed to do the work.

The Ontario Dental Society will meet the last week of May, 1911.

A report of the dental inspection of the school children of Montreal shows that there are 50,000 with decayed teeth. If 50,000 have decayed teeth there will be at least 40,000 of these whose general health is materially affected by having unclean mouths. Besides this a large number of the enlarged glands, sore throats and indigestions reported are directly due to the condition of the mouth.

Drs. Eudore Dubeau, Gondreau and Nolin, of Laval University, spent Thanksgiving holiday on a tour of inspection of dental colleges. They visited the Royal College of Dental Surgeons, Toronto, then went to Detroit and Ann Arbor. Laval Dental School has increased rapidly in attendance and the authorities find it necessary to increase the facilities for teaching. There are over a hundred in attendance this year.

Medical examination of 2,108 children in the public schools of Edmonton made by Dr. Biggar, medical inspector, revealed 8 $\frac{1}{4}$ per cent. of the children with defective teeth. If the balance of the report is as accurate as this it is of worse than no value. It gives a false security. There is not a school in Canada or anywhere else which is so free of defective teeth as this report would indicate. Physicians know no more about the teeth and mouth than the ordinary person. The dentists of Edmonton should make an examination which will show the real state of the children's mouths.

Dentists who volunteered to make examinations in the Toronto Public Schools: J. A. Bothwell, R. J. Reade, C. V. Wallace, F. R. Mallory, E. F. Arnold, C. S. Woollatt, J. E. Black, W. G. L. Spaulding, E. C. Abbott, F. C. Husband, A. J. McDonagh, C. A. Corrigan, P. Clarkson, R. J. McLaughlin, J. P. McLachlan, C. H. Clarkson, J. W. Coran, L. A. Maxwell, A. E. Webster, F. C. Vanduzer, W. H. Doherty, J. Rhind, C. E. Williams, W. A. Black, J. W. Armstrong, H. W. Anderson, A. D. A. Mason, C. A. Kennedy.

Chief Public School Inspector Hughes, of Toronto, says: "I have always held from the start that the first step in medical inspection in the schools should be the dental department. I have said that for the past seventeen years. I believe in it absolutely because it is the centre of it all, not only for the health of the child who has the awful conditions revealed in the schools in Toronto, but for the health of all the children in the neighborhood of that child, those sitting around him in the same room."

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